THE PRIMARY TEACHER

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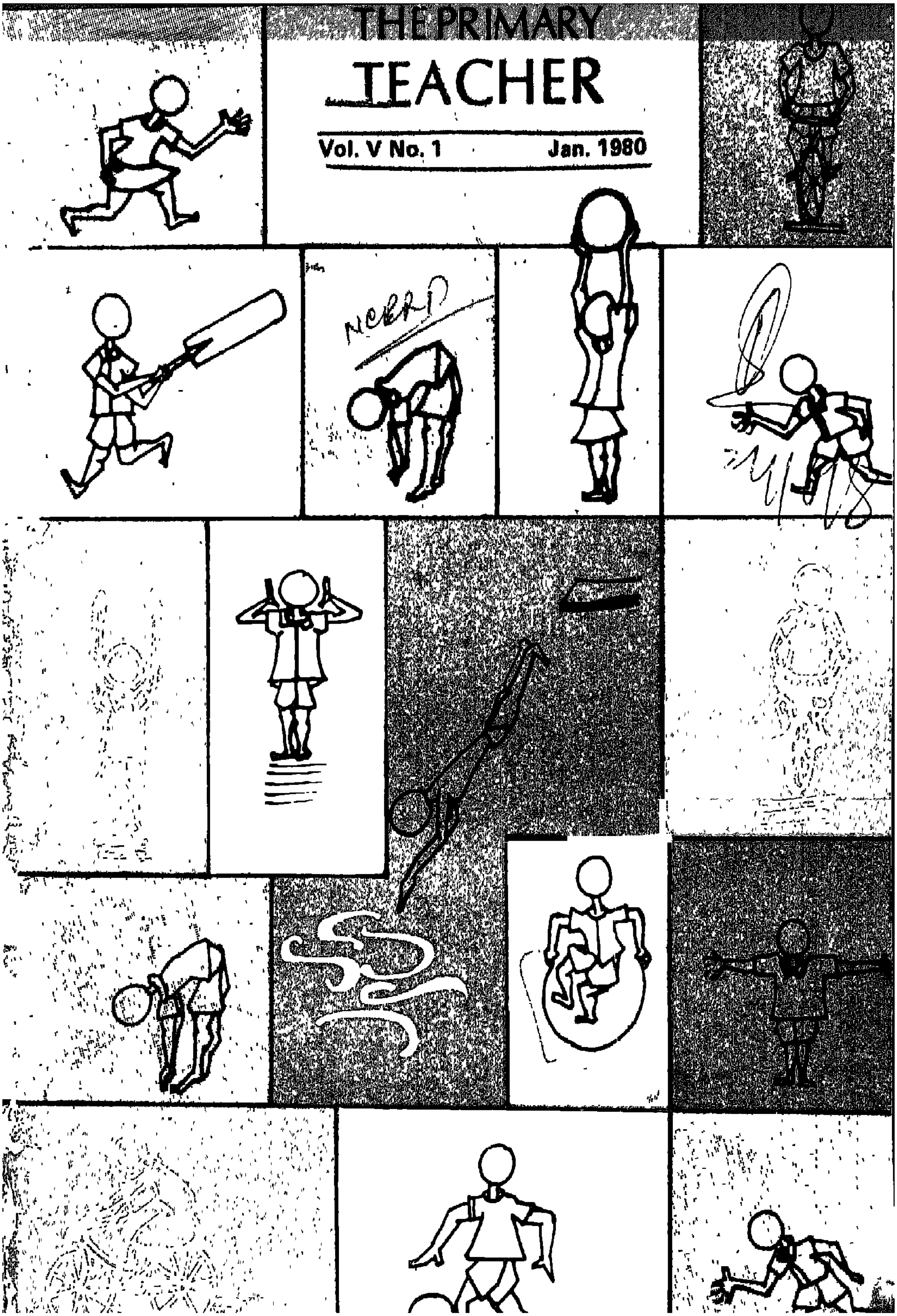

NCERT

The Primary Teacher is a quarterly brought out by the National Council of Educational Research and Training, New Delhi.

The journal intends to give to the practising teachers and concerned administrators authentic information about the educational policies being decided on and pursued at the Central level. It aims at giving meaningful and relevant material for direct use in the classroom. It would carry announcements of programmes, courses of study, etc., offered at various centres in India from time to time. It also provides a forum for the discussion of contemporary issues in the field of education.

The major features of *The Primary Teacher* are :

1. The educational policies concerning primary education
2. Questions and answers
3. States round-up
4. Illustrated material for classroom use

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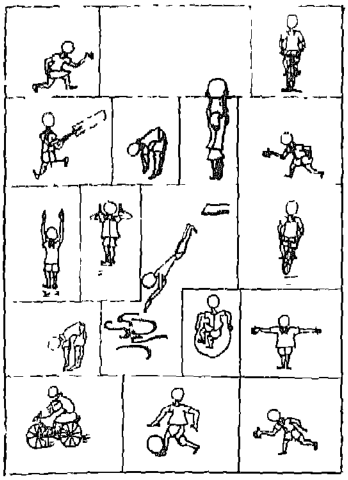

Cover . Kalyan Banerjee

The teacher is the maker of man

– John Adams

Learning is the eye of the mind

—Drake

It is a man-making education all-round that we want

—Swami Vivekanand

Editorial

EDUCATING FOR A HEALTHY LIVING

OUT OF THE several well-known purposes of education educating for a healthy living is considerably important. If physical well-being is meaningful for an individual's life, equally important should be the habits and practices that lay a sound foundation for physical fitness. Traditionally games and sports have been regarded as means toward achieving this end. Of course no one would deny their role but much lies beyond that. Healthy living essentially means proper attitudes toward life besides disease-free body and a clean, pollution-free atmosphere. As a precondition to freedom from disease physical fitness is essential. For those who attend schools the school programme itself should enable one to acquire such habits that result in healthy physique. But somehow this does not happen. Children are told theoretically to be active, healthy and sports-loving. Facts, however, do not support that the teachers really approve of what they say. Except for a lone teacher sports and games seldom receive the desired attention.

Physical education is in fact much more than mere games or sports. It is whole education of the body and mind. Plato gave to physique nearly as much importance as he gave to mind. Healthy mind in a healthy body was the old Greek adage given currency by this great thinker. It was not an empty slogan. We realize its importance as we read figures furnished in medical reports. An unhealthy child is an educational liability. An active, healthy child learns more and easily as compared to the one who is neither so active nor so healthy. Physical education does not require any great amount of finances. Mass P.T. and ordinary *asanas* can do the necessary trick even where no facilities exist for games and sports. If this education ceases to be looked upon as the responsibility of a single individual teacher much could be achieved easily. Teachers, one hopes, do not require too much persuasion when they are reminded of their professional obligation. Physical education is one such area where they have to be told to own up their responsibility.

Physical Education and Primary School Curriculum

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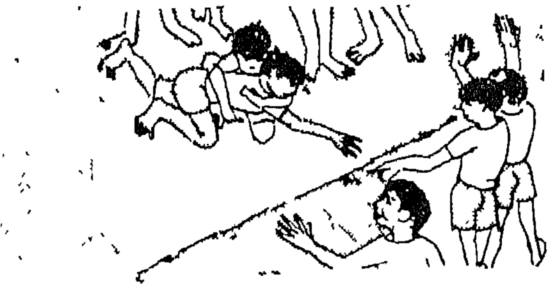


ALL ROUND DEVELOPMENT of child's personality is the sole aim of education. The role of physical education is very essential in fulfilling this aim. Physical education means not only mere physical training, drill or formal activities but it has a wider sense in form of mental, physical, emotional and social development. This is a generalized fact that mental, social, emotional and physical developments are interrelated and interdependant. Mental and emotional development are based on the bodily development. The social development is affected by the bodily development. The bodily development helps in tackling successfully difficult problems and helps the development of knowledge The 'yes' feeling, positive, optimism, cheerfulness and all the alike virtues most coveted are directly related to the bodily beautifulness. The mental health of the child, the poise, the grace and the like will be achieved by taking proper and timely care of the child's physical development.

Plato says, "For the first ten years of life, education shall be predominantly physical, every school is to have a gymnasium; and a playground, play and sports are to be entire curriculum; and in this first decade such health will be stored as will make all medicine unnecessary".

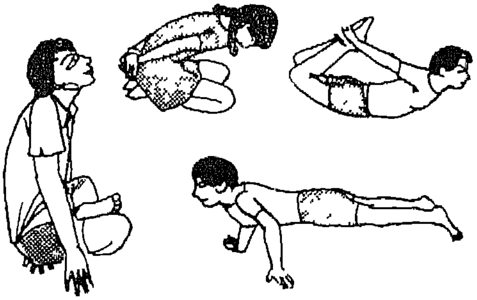
India has a tradition for physical education and sports for a very long time. In 1956, a useful guideline for a syllabus of physical education for primary and secondary schools was prepared by Union Ministry of Education. Education Commission (1964-66) has also recommended physical education as a compulsory subject. In 1965, the Govt of India framed a multipurpose programme of physical education for implementation in the secondary schools of the country. In 10+2 pattern of education in the country, it has been agreed by all concerned that physical education should be out of the seven compulsory subjects in the school curriculum and it should be properly integrated in the pattern of education. The Review Committee (1977) on curriculum for the ten-year school headed by Shri Ishwarbhai

J Patel has emphasized the need for adequate time provision for this area of school curriculum and special guidance to teachers on physical education, particularly at the primary stage. The report of the committee says, 'In the field of physical education we find that at the primary level properly guided activities are not provided, so that when children come to the next sub-stage, their body capacity is not developed sufficiently to undertake physical education which is provided by the specialist teacher! The committee has suggested that physical education at the primary stage should include (i) dance, (ii) games including training, (iii) yoga, (iv) gymnastics and swimming. The Department of School Education, NCERT, New Delhi (1979) prepared a draft curriculum in physical education for Classes I to X, on the basis of the Review Committee recommendations.

The aim of teaching physical education at the primary stage is to develop a child physically, mentally, and emotionally It further aims to develop a pupil's personal and social qualities which may help him to lead a healthy, joyful and complete life, contributing positively to the community and the society he lives in.

The curriculum of physical education at the primary stage needs to be developed. The Review Committee's recommendations for physical i e. dance, yoga, games, gymnastics and swimming mostly cover the above objectives. Uptill now it remained ignored at the primary stage but after introducing the 10+2 system it has been accepted by most of the states. Some suggestions are stated below for implementing the curriculum effectively :

— In the morning assembly, the class teachers should see the cleanliness of hair, teeth, nails, clothes, shoes, eyes, ears, satchels and daily bath of children. The teacher may give a talk in the assembly about cleanliness.



— The teacher should prepare well-planned programmes of physical education, scouting, guiding, N. C C., etc The programmes can be of help for the cultivation of such basic qualities as endurance, courage, decision-making, resourcefulness, respect for others, truthfulness, faithfulness, loyality to duty, and common good.

— The teacher should tell the use of handkerchief, the good habit of putting the waste papers and other waste materials in dustbins, habit of cleaning the slate with sponge or a piece of cloth and stress not to clean the slate with spit.

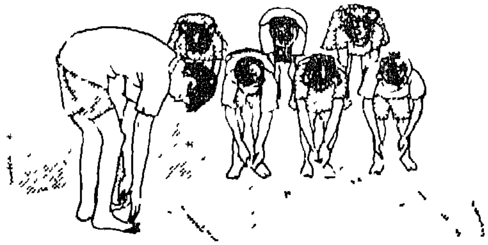
- The teacher should develop good qualities and habits when sitting in class, writing in class, standing in class, or walking in class, taking water in school and also the habit for taking the mid-day meals, whether supplied by school or home, at proper place and emphasize washing the hands and mouth before and after meals
- For Class I and II, first, the teacher should use the long whistle to stop and after giving some training with the whistle to the child he should develop the habit of understanding various signals.
- The teacher should make arrangement for free movements i.e. walking, running, jumping, throwing, hanging etc., and also for high jump, long jump, throwing, athletic meet and to jump himself from the rope because it contributes to poise and coordination, fun, joy, enjoyment and physical fitness.
- For developing the ability to concentrate and establish values for later life, the teacher should give the training in yoga by showing charts of various yoga positions, various games, gymnastics and by demonstration on some occasions.
- The teacher should adopt local dances, explaining and demonstrating the movements. At the primary stage, various stimuli for dancing may be provided by means of audible stimuli like vocal sounds, clapping, drums, and also visual stimuli like demonstrations
- For developing creative self-expression, language expression, fun and enjoyment the teacher should teach them imitation and mimetics i.e. beggar, old man, soldier, doctor, buffalo, monkey, boat, birdsflying, bear, camel, lamb, lion, bus, motor-car, train etc and story-plays of a boat-trip to a pond or a river, fox and grapes, fox and the crocodile, travelling and the circus etc.
- For fun and enjoyment, recreation, sense of cooperation, strength and neuro muscular coordination, the teachers should make certain arrangement for games and other activities i.e. cat and rat, king of circle, *kho-kho*, *kabaddi*, lion and the cage, find out the leader, camel walk, rope climbing, knee slap, stepping on toes, monkey walk, and football etc.
- The teacher should take the children to the nearby pond river, or swimming pool, if

possible, for developing the technique of swimming, self-confidence and removing fear of water.

- There should be regular last period for physical education at the primary stage. Games or other physical activities should be compulsory for all the students in that period according to their choice. For making all the children participate in games and other activities intramural competitions should be used.
- For evaluating and implementing the curriculum in an effective manner, the teacher should prepare a checklist consisting the important content of physical education for daily life and be asked to mark it daily. The teacher should check this checklist daily, so that good qualities can be developed in children.

□

Physical Education in Primary Schools



NEERJA SHUKLA
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PHYSICAL EXERCISE and physical education have been a healthy tradition of Indian society. The ancient hymns have involved the Divine Powers to let an individual lead a healthy life throughout. The expectation to have each and every part of the body healthy has been a part of Indian tradition. The village ecology has relatively been free of urban population and here all parts of the body have regularly been used naturally, therefore, it appears a little strange that one should talk of providing a distinct physical education programme under these circumstances. In a teacher training programme health education is taught as a theoretical knowledge—something that is seldom practised in life. The reality is that no one denies the importance of physical education but when it comes to practising it the general indifference naturally surfaces itself. An ordinary teacher refuses to acknowledge that it is his job and, therefore, attempts to withdraw himself. In fact, but for big schools and affluent educational institutions there are no separate teachers for physical education. Consequently it is a job which all have to share and withdrawal is no solution.

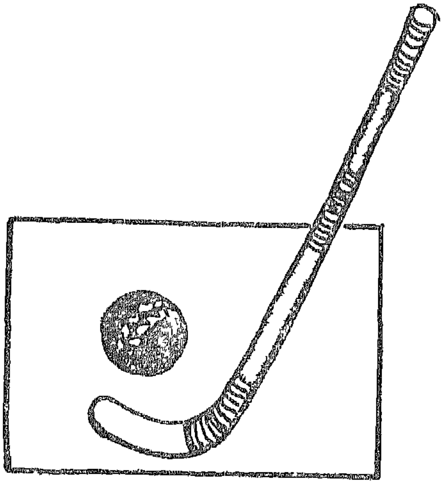
Because of expenses involved several useful activities in schools never take place. Primary schools generally lack financial provisions, and, therefore, it is no surprise that even on most necessary items no expenditure is incurred. It should not surprise anybody that from the point of view of priorities, schools are unwilling to spend money on games but perhaps even more important point is that the teachers do not have proper attitudes towards games and attach very little importance to games as such.

Physical education does not constitute mere games and neither does it constitute proper postures and walking habits. Physical education means a proper utilization of all parts of the body and their constant and healthy use. Games are merely a means to keep the body active, and also result in instant decisions so that decision-making becomes a normal ordinary capacity. For physical education taking of exercises is as essential as games. Perhaps one more thing may be mentioned here i.e. physical education is as important as book learning.

The following are the aims of physical education :

- (*i*) To keep one physically fit.
- (*ii*) To inculcate qualities of a good citizen in an individual such as leading a cooperative life and giving a patient hearing to others.
- (*iii*) To develop emotional maturity.
- (*iv*) To keep oneself happy and develop a balanced personality.

Despite developing all these qualities physical education has not been given its due recognition. As already indicated neither do all teachers take equal interest in it nor is there any indication that people have a healthy attitude towards it. There is a general lack of information that an easy solution is nowhere in sight. There is curriculum load and the defective examination system and both these are fairly important for undermining the real significance of physical education. It is, therefore, necessary that the headmaster should regard physical education an inseparable part of general education and regard it equally important. It is also necessary that physical education should be properly organized and developed in a planned manner. Unless physical education is regarded as a part of school activity it will continue to remain neglected



It is true that in India physical education lags behind as compared to other parts of the world. Neither socially does it often get much encouragement nor does a proper atmosphere exist for its development. If cleanliness of schools and physical education received even a part of the attention our progress in these would not be as indifferent as it is today.

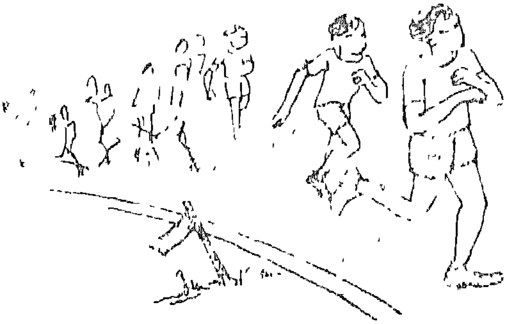
We have already indicated that games and sports have their importance in the development of children's physique. It may also be noted here that all games and sports do not require large sums of money. To this day in rural India several games are played which have great importance from the point of view of physical education. For us only those games deserve our attention that demand maximum participation of students and also they are inexpensive. All children should come to the playground. Hockey, football etc. are good games but their playgrounds demand some allocation of money. Also, all children cannot participate in these games. This of course does not mean that these games are unimportant and undesirable. But wherever possible children could be engaged in such games through which it may be possible to give proper physical education.

Several inexpensive activities could be organized for a fruitful physical education programme e.g. children could be taught easily how to sit in proper postures through the *asanas* It is possible to give training in *asanas* to all children simultaneously. All teachers can also be utilized for this purpose

PT and races can also be made a regular part of physical education. In order to create competitive spirit best performance in race and PT should be rewarded.

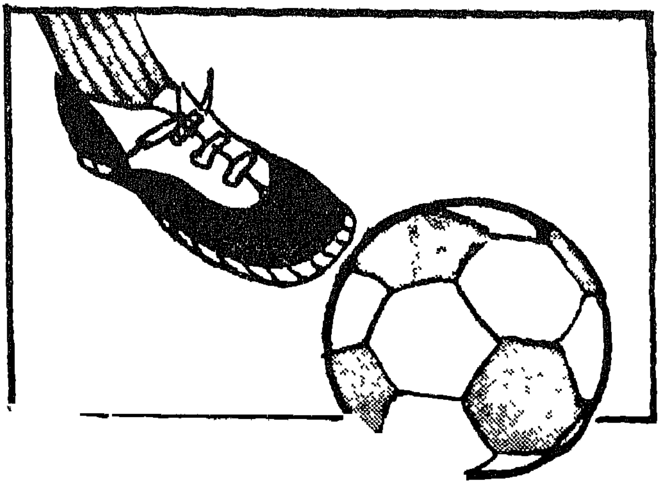
Where facility exists swimming could also be taught and this could be made a part of the physical education programme

Teaching of postures, *asanas* etc. have already been pointed out as important components of physical education. Both in villages and urban areas *kabaddi* and *kho-kho* can be played without any extra monetary involvement.



By now it must have become clear that in place of providing money for physical education what is more essential is to get it an important place in the school curriculum We must also try to modify the attitudes of teachers. Physical education should be made a part of the regular school programme, herein lies the benefit of all.

Everybody wants that all citizens of the nation should be disease free and healthy. This demands constant efforts in this direction. It is only then we would find ourselves a proper place in the comity of nations. □



An Educational Game for Children

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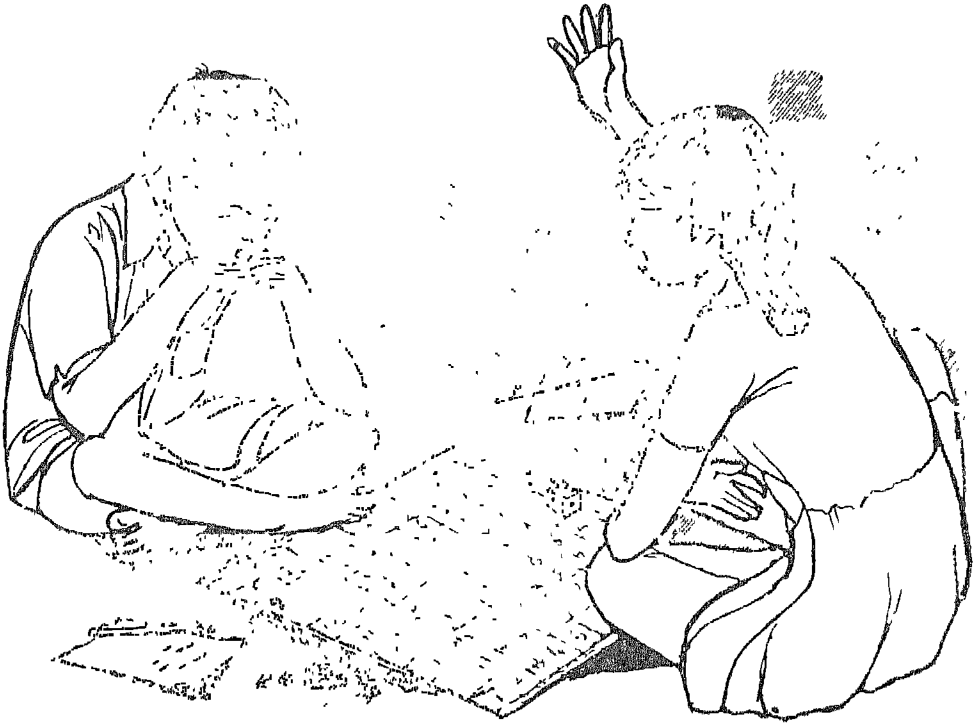
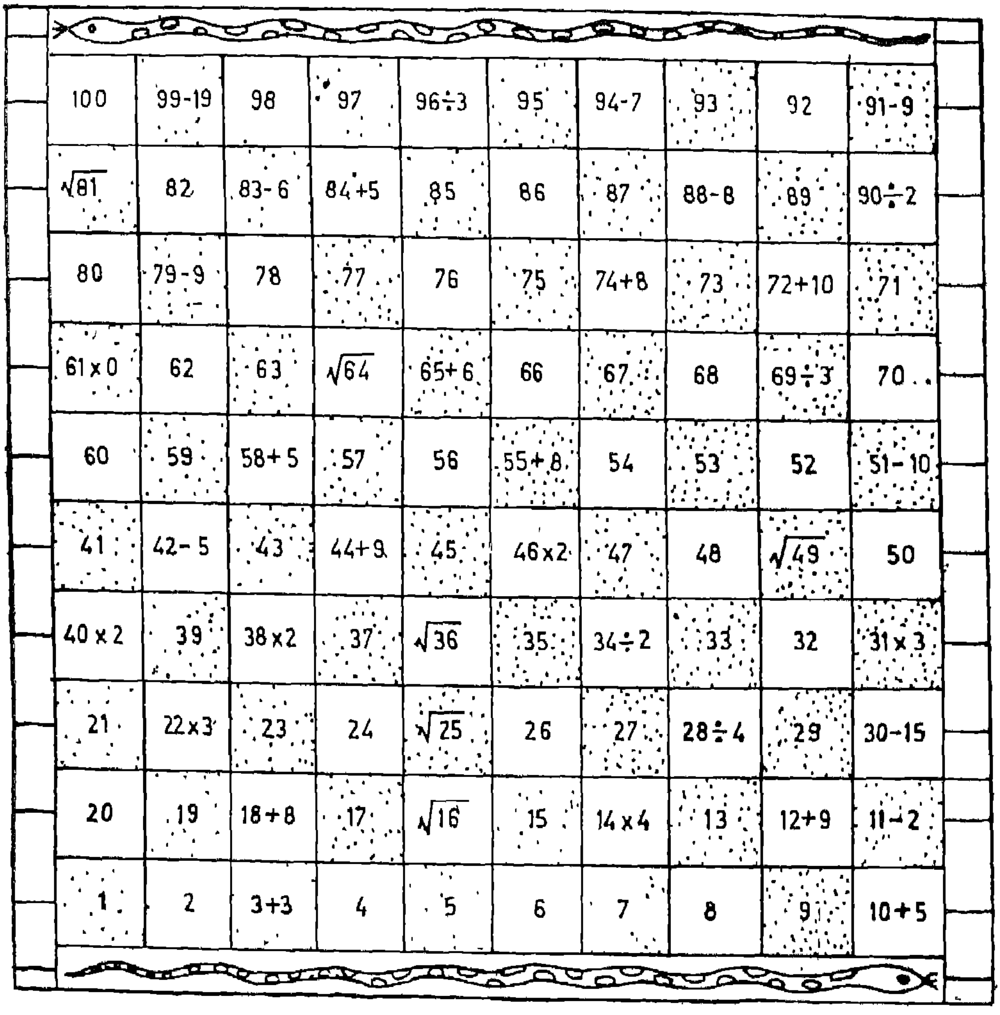
CHILDHOOD is an age of playing and pleasure-making. These days the children find less time to play than before. They go to the schools with a heavy load of books and come back with heavy home-work, thus, finding a little time for playing. Those children who study in the public schools remain even more busy in their studies both at the schools and at home. The competitive age of the present days is making the childhood more tense and fearful. The International Year of the Child emphasizes on the welfare of the children. More and more emphasis is being laid to make the primary education interesting, entertaining and enjoyable for the children. Education through games and symbols is becoming popular. One such project which stresses on education through games has been launched in the 14 schools of the Union Territory of Chandigarh with the help of the British Council. An interesting educational game which is mathematical in nature, has been devised to provide adequate oppor-



tunities to the children to learn and revise mathematics while playing.

This mathematical game for children is an improvement over the snakes and ladders game which is commonly known as 'Ludo' that is too obsolete for the modern children. In this new game the snakes have been replaced by the mathematical signs like subtraction, under-root and division, while the ladders have been replaced by the signs like addition and multiplication. The playing procedure of this game is the same as that of the original snakes and ladders game and this has been made amply clear on the game chart. Two to six players can play this game at a time.

The game is played with the help of a dice (cube with sides marked from one to six). Suppose a player has reached the square three then he will be given the



100	99-19	98	97	96÷3	95	94-7	93	92	91-9
$\sqrt{81}$	82	83-6	84+5	85	86	87	88-8	89	90÷2
80	79-9	78	77	76	75	74+8	73	72+10	71
61x0	62	63	$\sqrt{64}$	65+6	66	67	68	69÷3	70
60	59	58+5	57	56	55+8	54	53	52	51-10
41	42-5	43	44+9	45	46x2	47	48	$\sqrt{49}$	50
40x2	39	38x2	37	$\sqrt{36}$	35	34÷2	33	32	31x3
21	22x3	23	24	$\sqrt{25}$	26	27	28÷4	29	30-15
20	19	18+8	17	$\sqrt{16}$	15	14x4	13	12+9	11-2
1	2	3+3	4	5	6	7	8	9	10+5

benefit of three more and will reach the square six due to the addition of three in square three. He will also get one more chance of throwing the dice because he was rewarded in the previous throw as in the original snakes and ladders game. A player who reaches square 30 while playing will come back to square 15 due to the subtraction of 15 from the square 30 as punishment. If a player reaches square 46 he will jump to square 92 as a result of multiplication of 46 by 2 and will also get one extra chance of throwing the dice A player who will reach square 61 will be knocked out of the game chart due to the multiplication of 61 with zero and will open his new account from his next turn of throwing the dice. A player who reaches square 69 will come down to square 23 due to the division of 69 by 3. Suppose a player reaches square 81, then he will come down to square 9 due to the under-root sign in square 81. A player who reaches square 100 first will be the winner.

The playing of this game involves simple mathematics. The children studying above the Class II standard can easily play this game with a little guidance in the beginning. The children who will play this game will certainly improve their ability in mathematics. □

Providing Suitable Environment for Child's Development

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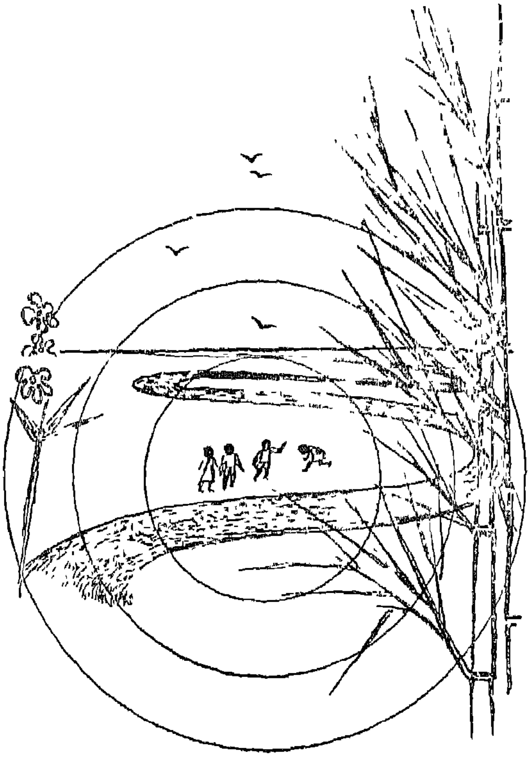
CHILDHOOD is the time when the foundation of a child's personality is laid. Proper development at this time only can give proper shape to his personality. This is also the most appropriate period to canalize his habits, interest and capabilities in the right direction. For this the child needs proper environment at home and at school. The parents at home and the teacher at school can help in providing the right atmosphere for the child to grow. But many times they may not be able to judge what are the needs of the child at a particular stage and so are unable to help the child. If only they know the child's growth pattern at various stages they will be well equipped to take good care of him. So let's know what are these :

(i) Definite, successive and continuous process of the child development.
(ii) Difference between a child's and an adult's behaviour.



(iii) Importance of providing suitable environments to bring out the child's inherent potentials.

Development of the Child

The child grows continuously till the age of 17-18 years, but the earlier 6-7 years of the growth period are most important. The rate of growth is different at different stages. It is the maximum in the first six months when the child doubles its weight and in one year the child's weight trebles. One can measure body growth by the birth weight quite easily but it is a little difficult to judge the mental development of the child. A child's brain develops by 13 per cent in the first year, by 25 per cent in the second year and by 10 per cent during the third year. His nervous tissues also develop by 90 per cent by the end of six years and after that these develop continuously at a very slow speed.

Maturity

Attainment of maturity is very important in the process of mental development. After achieving maturity a child can perform the expected actions and learn different skills. When he is able to perform a skill cleverly it signifies his attainment of maturity. Whereas, in the absence of it a child is unable to learn any skill in spite of providing him with suitable opportunities, environment and training But once matured he learns things very easily, in less time and in a more refined manner. For example, a child learns walking at a particular age, i.e. one to one and a half years. Similarly, learning of language too needs maturity. Therefore, the teachers must keep in mind the level of maturity of their pupils before teaching any skill. They must never try to teach such things to the students which are beyond them, otherwise they will only waste their efforts or punish the students unnecessarily, thinking that they are not attentive.

Order of Development

There is definite order of child's development and it is the same for all children. The rule is that as the child grows, his movements become more specific. An infant first starts moving his eyes and later on his head. If a child's toe is injured he will move whole of his body, not just the toe. But at 2-3 years of age when he gains control over foot muscles, he will only move his toe under similar circumstances. Similarly in the beginning a child tries to grasp any object with the hand but later on learns to hold with the fingers or with his thumb. Learning of language follows the same process. It starts with syllables and then goes on to words.

Social Development

Different phases of child development such as physical, mental and social, are all related to each other. A child's mental growth will suffer in case of improper physical growth and his social development will suffer in absence of suitable social environment. A child who is left amidst animals in a forest will speak and behave like animals only. A child learns a lot from those amidst whom he stays; from his friends, parents, teachers and relatives. This way his social development takes place His dealings with his friends, with peer groups and his negative or positive attitudes signify his social behaviour.

Just like mental and physical development, social development too takes place at various levels. In the beginning a child is selfish and wants to get his physical needs attended to. The negative attitudes such as to show resistance or stubbornness start appearing at the age of two or three years. This may happen particularly when the child is asked to share what he earlier used to have just for himself. Whenever his things are given to others he starts resisting. Sometimes a child also becomes obstinate after illness or when he is neglected

After three years a child starts becoming social. His earlier behaviour now changes He starts making friends and enjoys playing in company. He also learns to share. At five a child seeks the company of his friends all the more. Now they start play-acting, they like to imitate their elders and enjoy copying day-to-day situations

Many factors influence a child's social development at home such as number of children in the family, play-materials and playmates. An only child or a late-born child gets too much attention from the pa-

rents. He then expects the same from his teachers and in the absence of this he creates problems Lack of love and understanding between the parents too affects a child's personality. Such children become maladjusts. Factors like rigid discipline, and improper behaviour of adults towards their elders, criticism and uncalled for punishment too affect the child's social adjustment.

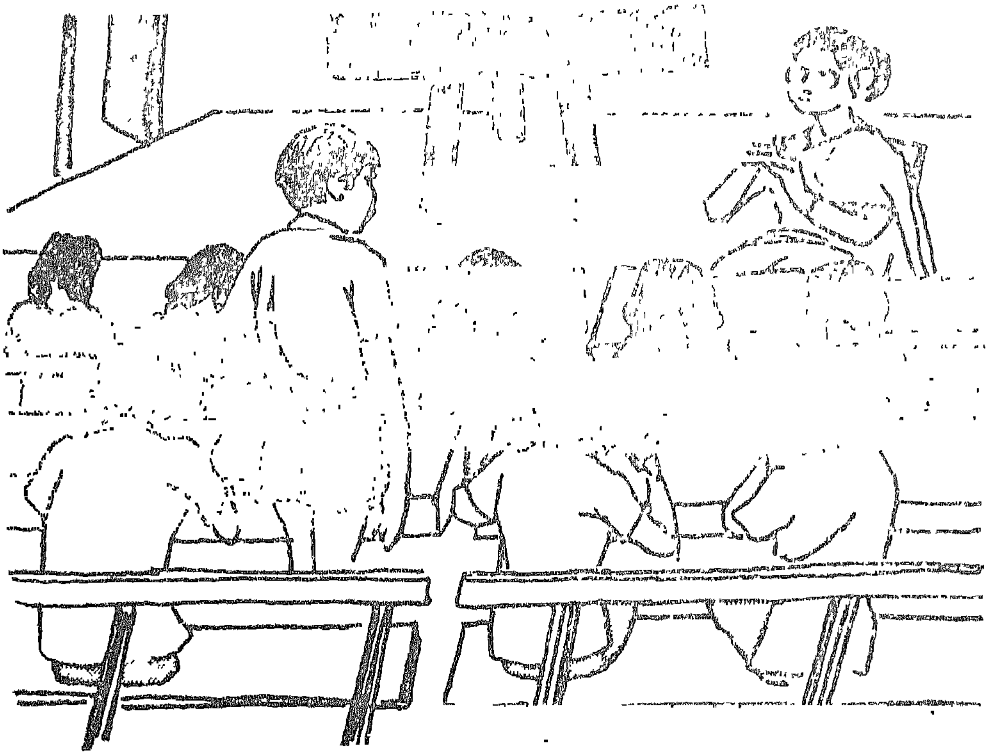
A child will always make friends of his own age. The neighbourhood environment affects him directly. No doubt, he becomes friendly with those who speak his own language but he also makes friends with others and learns their languages. A child who comes from U.P. to Orissa learns Hindi, Bengali and Uriya simultaneously. He also picks up their customs, behaviour and way of living. In such situations the neighbourhood has special contribution in his social development. When the child starts going to school, his social circle becomes still wider.

Child's Nature

It is a general complaint that children are very mischievous. They can't sit quietly even for a minute. But the first thing about a child's nature is that he cannot behave like an adult. By nature a child is naughty and imaginative Imitation is the second nature to him In fact, he learns many things by imitation only. But his capacities of learning, thinking and analysing are not developed as that of the adults. It is true that a five or six years old child cannot sit quietly at one place for a long time. The reason is that he is repeating his infancy habits or imitating somebody in his imagination. Seven to eight years old children who are little bit familiar with the game of cricket are often seen making actions without bat and ball as if really playing cricket. Not only this, sometimes they keep talking to themselves as if they are talking to another person. Such actions look absurd. Parents or teachers may punish the children in such cases but the child is unable to understand why he is being punished. May be he is trying to imitate his favourite cricketer or practising some special skill. So we should not criticize a child unnecessarily. It curbs his imaginative skills and he cannot develop his interests properly. A child's behaviour cannot be compared with an adult's behaviour.

Children of two to three years do many activities without knowing or understanding them. They enjoy mimicking the animals, specially a cat, a dog and a lion. In fact, they learn the language, the social behaviour and actions like walking etc. just by imitation. When six to seven years they indulge in make-believe play which is still another form of imitation. They like to enact doctor's, parents' and teacher's role and copy their actions and behaviour in their play quite seriously.

The ability to know what is good or bad and to understand what is expected from him, starts



developing only after children are five-six years old. Even then when we try to explain something to them they cannot understand it as much as an adult can. Then they start asking how and why for many things, when some parents or teachers may get irritated and think that the child is a fool, forgetting that they are comparing the child's understanding capacity with their own. Whereas justification lies in accepting the child's behaviour at the level of the child's understanding only.

Developing Inherent Potentials

A child has many latent interests, talents and capacities which can be developed by providing the suitable environment. Different interests and thoughts only make a child a unit in itself. All children are not the same from this point of view. Not only this their capacity of learning and its speed too are different. Seven-year-olds are able to learn an idea or follow a given process. Very few can do the same at five or six and some are able to do so at nine or ten. On this basis only children are classified as average, above average, extraordinarily talented, or as below average or very slow in learning. So while teaching, a child's level of learning must be considered and the teacher should not punish a slow child if he is not able to do as well as the others in the class. It will not be good for such a child, in fact, he needs the teacher's sympathies all the more.

A child's level of intelligence depends upon heredity and environment, where heredity includes physique, mental make-up and nervous structure and the climate, the way of living, eating habits and social conditions comprise the environment. Now which are more important, is again a point of controversy. But there is no doubt that both help in the manifestation of the child's talents. The right atmosphere at home and at school can help in proper development of the child's habits, his interests and his intellectual capacities. By nature a child is simple. Improper atmosphere at school only teaches him wrong things. So the teachers at school and the parents at home should provide proper guidance, required means and suitable conditions to each and every child. They must assess a child's interests and capabilities and then try to brush up and promote these. Equally important is the realization that a child cannot be taught a particular subject if he is not interested in it.

Sometimes a primary teacher may also have to guide the parents on these points so that the parents don't oppose if a child takes more interest in games, music, drama and such other activities. Who knows he may have special talents for these and may rise up in his field of interest if properly guided and encouraged If a child draws a teacher's cartoon on the blackboard, the teacher should draw the child's attention towards drawing of sketches. Similarly if the children are engaged in diverse activities suited to their taste they can learn many things on their own It will also make the teacher's task of maintaining discipline easier.

The need of the hour is to provide healthy atmosphere for the children and save the society from the evils of child delinquency, broken homes and spoiled children. A slight difference in the attitudes of the parents and the teachers makes a lot of change in moulding the child's personality. Which way to mould, is again to be decided by the teachers and the parents. So the importance of their role. □

Universal Learning Strategy for Primary Schools

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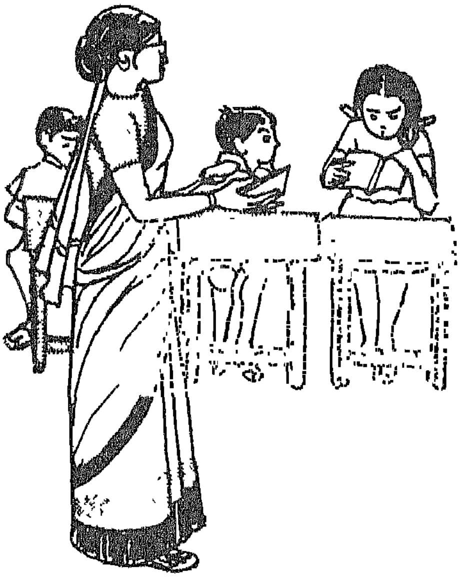

MILLIONS OF CHILDREN go to our primary schools. Millions of teachers are engaged in teaching these children. Millions of hours are spent for teaching them in schools. Millions of rupees are invested in the system of primary schooling—the largest not only in our country, but in the whole world.

Do all children who enter our primary schools learn all of what is taught to them in the classrooms ? If not, why ? Can we ignore this phenomenon ? Is it possible to manage teaching in a way that all children can learn all of what is taught to them in the primary classrooms ? If it is possible, why is this possibility not converted into a reality ? What can be done to achieve this goal—a cherished one indeed !

Whatever be the answers to the questions posed above, you will agree with me that every child in our pirmary schools should be able to learn every bit of the *substantive content* of what is taught to him. The goal seems to be ambitious as well as laudable. But, it is indispensable, because the knowledge and skills to be acquired at this stage are foundational in character. If they are not mastered by the child at this stage, their subsequent learning is adversely affected. As a matter of fact, the knowledge and skill acquired in the beginning grades act as the medium for further learning. It is for this reason that Universal Learning Strategy (ULS) has been designed.

Universal Learning Strategy envisages *near* hundred per cent learning which implies that *nearly* all children learn *nearly* hundred per cent of what is taught to them. The *nearly* with children has been used to exclude special children with physical and intellectual handicaps who can be taken care of by the special schools. *Nearly* with learning level has been used to imply that hundred per cent of most of the aspects of what is taught is learnt while in the case of some aspects this level may vary from 85-100 per cent. The strategy has been developed by the author through his own experience of teaching the primary school children, working with primary school teachers, and study of the researches in the area of learning and instruction.

You might have observed that different children take different amount of time in learning the same thing. So, if we can provide enough time to children for proper learning of what is taught to them, there is likelihood of each of them learning it. This poses organizational problems, particularly, in the class-teaching system we have in our primary schools. Reference to these problems and suggested solutions will be briefly mentioned in the steps of ULS. Secondly, different children have different learning patterns. This implies that if the teacher modifies his teaching a little for the children who have not been able to learn all of what has been taught in the first attempt, there is likelihood that they will be able to learn it. Of course, the modified teaching will be based on the diagnosis of the children's difficulties. These two observations form the base of the Universal Learning Strategy

The Universal Learning Strategy envisages several steps :

1. *Develop Sequential Teaching Units*—Convenient sequential teaching units are prepared. Unit tests are also developed along with the teaching units. The task is a little demanding one, but not too difficult. These days units have been developed as a part of different projects in NCERT, SIE/SCERT's Extension Centres, Centres for Continuing Education of Teachers and some Teacher's Training Institutions. These units can be helpful in developing your own units. Teacher's Guides, wherever available, can accomplish this task. It will be worthwhile to list separately the skills and knowledge items for planned practice.
2. *Decide the Learning Level* – The learning level of the unit may be decided. This may indicate the percentage of children learning the percentage of the content of teaching. In the case of learning of number concepts, counting, four fundamental operations on numbers, basic language skills, the level should be hundred per cent children learning hundred per cent of what is taught. However, in the case of some aspects, the level can be lower-

ed a little. But in no case, should it be below 85 per cent.

3. *Teach the Unit*—The unit is taught to the class as a whole with maximum learning by maximum of children in the first attempt itself as the objective.

4. *Evaluate Learning*—Give unit test prepared along with the teaching unit to find out the learning level of the pupils. This information may be used to identify the children who have learnt all that was taught. They may be grouped together (A), identify the children who need little more practice for learning (B), try to assess the causes as to why other children could not reach the desirable level of learning. They may be grouped separately (C). If the number of children in group(C)is large and learning difficulties quite divergent, the group can be further split.

5. *Make Renewed Effort*—Reinforce learning in groups (B) and (C) through modified teaching approach. Group (B) may be given assignment for practice. Selected children from group (A) can be engaged in supervising and helping group (B) Teach group (C) with modified approach in the light of their learning difficulties. For giving practice after reteaching, assistance of children from group (A) can be taken. The children from group (A) who are not engaged in assisting children in group (B) and (C) can be given puzzles, educational games concerning the subject being studied.

6. *Re-evaluate*—The teacher evaluates groups (B) and (C). Those achieving the desired level of learning will join group (A). The learning difficulties of the remaining children may be studied further. Group(A) will work on its own. Educational games, revision work etc. will be given to group(A).

7. *Organize Tutorial Service*—For the remaining children who have failed to achieve the desired level of learning will be provided tutorial service by the teacher and selected children from group (A) as per need. Tutorial service for

removing individual difficulties may, however, be organized by the teacher only as far as possible.

8. *Teach the Next Unit*—The steps 1 to 7 above take all the children to the desired learning level. They can now pass on to the new teaching unit.

The Universal Learning Strategy (ULS) was discussed with the primary teachers during an in-service course. They were convinced of the utility as well as desirability of using the ULS. It was felt that this effort will be helpful in retaining the children who drop out due to frustration arising out of the irday-to-day failure in learning. They wished to have assistance in preparation of the materials for (1) above and guidance in the initial stage. A doubt was also expressed by some teachers about the ability to cover the syllabus prescribed for the class Through exchange of experience and ideas, it was concluded by the group that in the beginning the pace of covering the syllabus may be a little slow. But ultimately it will save on time, since adequate learning at each stage will facilitate subsequent learning. Keeping in view the gains, the group expressed a desire to try out the ULS if guidance is made available.

How do you feel about the strategy ? Would you also like to try it out ? Why not try out with assistance from the agencies like SCERT, Extension Centres, Centre for Continuing Education of Teachers, Teacher Training Institutions, whichever is convenient and accessible to you. Or else establish direct contact with the author through correspondence. In a subsequent article, the author proposes to illustrate steps 1 to 7 of the Universal Learning Strategy through a concrete example from a subject area. □

Sources of Inspiration : These Painters

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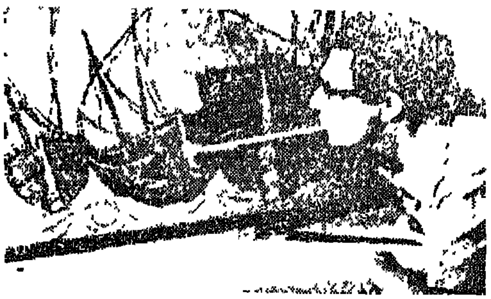
WE HAVE in this country several types of disabled children. A few lame or helpless from other physical disabilities such as deaf, dumb or suffering from paralyses etc. In the name of education the facilities provided by the government are either too narrow in the scope or meaningless in terms of their few possibilities. Subsequently, they cannot derive much benefit out of these facilities.

These physically disabled or crippled children should be provided with general education along with some kind of practical training. Besides these, they must also be given creative education so that they do not regard their disability as a punishment and do not lose their mental balance. This kind of education will not only provide them with proper equipment for life but they can also earn simultaneously.

In foreign countries several facilities are provided to such children. Through a specialized department in the government facilities are provided to them and for a better future varied training for jobs is also offered. This enables these children to contribute their mite towards national life besides earning their livelihood.

In this context we may refer to the name of an Indian painter Shri Jyanti Lal Shihora who is an example for others. He is a famous painter, but unfortunately, he does not have both the hands and still he works like any other ordinary human being. For earning his livelihood he uses his



brush by holding it by his teeth and thus does his painting.

His paintings have a strange attractive quality and the colour combinations are strikingly unique. His creations are purchased by the rich art-loving people after paying proper remuneration to him. We still have in this country art-loving rich community who are willing to pay any amount for paintings and decorate their drawing rooms with them.

Yet another painter who lives in Allahabad is Shri Raja Ram He is also disabled; he had lost one of his hands in an accident. He is a great painter and does his work on commercial lines. He had love for painting from the early days of his life. Innumerable young people had been trained by him who are today earning both money and fame.

In this connection we should not forget another foreign painter. He has also lost his hand. Born in Germany, his name is Staagman. In 1976, he established Mouth and Foot Artists Association. Staagman is the founder President of this association. This association awards scholarships, prizes and letters of recognition to disabled artists all over the world.

In India also we need a similar association so that these people are able to raise their families. Most of these disabled people suffer from inferiority complex, live under tension and because of their physical disabilities they are never able to utilize their potential talent.

Most disabled people resolve to agree as a contrast to these, others live a relatively well-to-do life. In between these two categories people die of self-condemnation and at times even commit suicide. We must have some schemes under which these disabled people can be prepared for life and thus make their existence meaningful. □

TEACHERS WRITE

[illegible]

The author here discusses the problems concerning the new education pattern in a letter form.

Dear Devi Thakur ji,

I have been deeply touched by your letter concerning modern system of education. The state of education is pitiable. It is not objectionable to raise fingers at an educational system which creates educational unemployment. Several other educationists not unlike you, have put question marks on the same.

You have shown concern regarding changes in the educational pattern. So far several attempts have been made to bring about radical changes in the system, with little results. You are right in saying that constant changes in the system could also be fatal. This leads, at times, to utter confusion.

But Thakurji, this cannot be helped With the growing educated unemployment educationists have been talking of wholesale changes in the system. Still, the unemployment problem has remained unresolved.

I hope you would agree with me that education must make a person, after he has been exposed for a given time to be able to stand on his own. He should no longer be economically dependant on others. He must learn some trade after his education is completed.

Thus far our education did not create this quality in an educated person. All guardians now want an education which results in learning a trade. They also want that these educated young persons do not look for jobs elsewhere. People like you after studying the serious problem have come to the conclusion that education must lead to employment. The time has come now that you should not worry about this problem. Very soon this country will have an education system where children will no longer be a burden on their guardians. After undergoing this new education they will learn a trade. In order that this system succeeds, we seek cooperation from persons like you.

You have raised a question in your letter with which I am in complete agreement. In a vast country like ours there are several job opportunities but there are no people to take up these jobs. Still it is being said that we have unemployment. Educated people do not get any job. What kind of riddle is this? Educated people do not know how to do work. These young men and women have been trained but they have not been told either to love their country or to learn a trade. This is no fault of theirs. It is the system that is to be blamed which has produced these people.

But there is not much worry now. The system is being introduced in which educated people will learn some trade. They would no longer have the way. This must satisfy you. Your children will no longer be looking for jobs elsewhere.

You have also asked in your letter that children of this area cannot stand a national competition. In this also neither you nor the student is to be blamed. People had overlooked this fact. Now almost everybody is aware of it. We do not have a national system of education. Our education policies have been very defective. That is why the system was not developing fully. Whatever education system was introduced it failed at the national level. You know it already that the state government run their own system and, therefore, there are different education systems in the country. These systems have been working against the national interest. That is why a job-oriented education system is being introduced at the national level. The 10+2+3 scheme is a move in that direction.

You have wanted to know several things about this 10+2+3 system Is it new? You are right in suggesting that there is nothing new in this. This system was introduced a few years back and the present one is a modified version of the same. Because of certain reasons it had been postponed to be introduced throughout the country Now Sir, I will tell you a few special features of this system

There is not much new. But from two points of view it is fairly important. Firstly, it is job-oriented, secondly, it is being introduced at the national level. This is not a state programme. It is a permanent and national system of education If you recall U.P. has 10+2+2, Bihar 7+4+4, M.P. and others 10+3 or 10+1+3 or 11+1+3 etc. Because of these children from different areas have suffered at the national level competitions. Not only does the time factor vary but the efforts and the labour of children also go waste in several states. This would no longer be true under the new pattern. Since you want to know about this 10+2+3, I must emphasize that this is an arrangement which divides education into three units. The first consists of 10 years, the second of 2 years and the third of 3 years. In the first a child will study up to 16+. After that he would learn a trade according to his liking. Perhaps you would like to ask if the child has no aptitude for any specialized training, then ? For such children also there is a way-out. The ordinary arrangement of education has been made. There is no need to worry on this account. In this way you can easily say that this is both an ordinary and specialized type of education. Up to 18+ it is a positive system of education. The last stage i. e. +3 is meant for those who want the first university degree.

The purpose of new education is to provide meaningful education and give them maturity. From psychological point of view it is an allround education which leads to social and educational unity. By introducing one single system of education throughout the country children will have the benefit of feeling. They will all go together irrespective of their State and cultural differences. By introducing SUPW a proper relationship is being established between head and hand which would lead to general, physical development of all children. This new system would, therefore, correct both mental and physical growth.

The system would be useful from several other points of view as well. It would be production oriented and more scientific. It would be easy to control university and trades. The problem of falling educational standards would also be partly resolved. It would be easy to correct the constantly falling educational standards.

You would also like to know the new subjects that are likely to be introduced. Up to Class X children shall learn the mother tongue and the regional language, higher Hindi and also elementary Hindi, higher and elementary English.

In the Hindi-speaking areas the mother tongue and the regional languages, English and one modern Indian language, physics, chemistry, mathematics, biology, history, civics, geography, economics etc. will also be offered out of which children will make their own choice.

Now we come to evaluation After Class X the evaluation would be just as it used to be. The only change is that nobody would be declared fail. This is something which is an innovation. You would also like to know if a child has to take an examination. He must also be given his result usually and if he does not pass or fail how would they declare the result. The result would now be announced on a 5 or 7-point scale. In the result-card all these subjects would be graded separately. This new grade system is an improvement over the past because children can now improve their results if they so like. However, they can be permitted to appear at the examination only annually.

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Importance of Technical Education at Primary Levels

THE BOOKISH EDUCATION of these days gives basic knowledge to the students and equips them well to move about in society but it does not prepare them well to earn their livelihood.

The aim of modern education seems to be just to develop ideal sentiments in the students. But can they really make their life successful based on such ideologies! Are they able to take right decisions about their future life! Probably not. In other words their mental make-up prepares them only to take up some kind of a job. Right from the time they enter the school, the students as well as their relatives start imagining about getting a white collar job, oblivious of the various other means of livelihood. From the early childhood this type of thinking limits their mental make-up and they stop taking interest in any other activity. And after finishing their education they start visiting various offices and schools in search of a job, where they have to face unemployment because of lack of any technical education. After spending quite a few of their learning years in the schools they reach such a stage that they can neither get any suitable job nor are they able to take any technical training or do some manual work. In addition they feel it below their dignity to do any technical job which ultimately leads to an attitude of disappointment and frustration towards education.

It is but natural that the government alone cannot provide for the employment suited to one's educational capabilities. Therefore, right from the primary levels, means should be provided to give physical and technical education to the students so that after finishing their education the students feel self-confident about taking up any type of a job and make right decisions about their future life.

The primary stage is the best stage to start any type of education because from this stage only the students are taught to develop self-confidence, will-power and right attitude towards their future life. His mental make-up at this stage only moulds his future life.

In the modern age the stress is on the psychological method of education. But it is difficult to know the child's mental condition because of paucity of proper means. And due to this only sometimes a child who has technical inclination of mind right from childhood is not able to devote his attention to the bookish education and the teacher may not be able to understand the child's indications. Many times such children are not able to take interest in bookish education and ultimately leave the school and get involved in some sort of technical work. Although after some time they may start learning something but they lose the opportunity to learn

Therefore, academic and technical education should be given simultaneously. Technical education should be made compulsory right from the primary stage so that the students feel confident about their abilities and have healthy attitude towards life and are able to take the right decisions.

It will save them from the disappointment of unemloyment and frustration and enable them to learn as well as earn

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Learning Spellings Meaningfully

IF POOR HANDWRITING is an indication of 'imperfect education calling for correction' spelling is another. There is certainly something lacking in the writing of a person prone to committing mistakes in spellings.

As we have started extra periods in all the subjects for supervised home-work in the school itself, students get a lot of time at home and in order to utilize that time fruitfully teachers should give lot of oral work to keep the child busy and develop the habit of self study. All this is possible when interest and competitive feeling is created among the students as in the following example.

The teacher exercised the importance of spelling exercises in Classes IV and V with the belief in the principle, the earlier the correction, the better it is.

Methods

1. Students were taught the use of dictionary.

2. The teacher instructed the students that instead of mugging up the words they should learn the spellings silently by closing their eyes and forming correct visual picture of the alphabets of a particular word. They were told to pronounce the word silently and re-check the spellings from their book.

Before continuing the lesson five minutes were given daily for oral spelling test from the previous portion. The following spelling games were introduced to the students:

(*i*) The teacher says a word, then a sentence using the word and finally the word again, e g. Examine—The doctors examine the patients and give them medicine.

Two boys from each team will write the word on the black-board. The whole class will repeat and copy all the words in their note-books. This helps in vocabulary building also.

(*ii*) The teacher writes on the black-board several words with their letters jumbled. The pupils from the two teams alternatively take a word and give its correct spelling.

(*iii*) Cross-word puzzles can be given. The team that solves first wins.

(*iv*) *Spellings—Cricket match*

A bowler from the bowling side puts a question and the batsman answers it, e g. the batsman may be asked to spell the word—Humour. If it is correctly spelled then one number is scored. If he cannot he is out. The scoring can be done as follows:

The following points may be kept in mind :

1. The purpose of spelling exercises is not to test the ability to spell, but to teach the spellings and to give practice in coordinating oral and written work.
2. To provide opportunity for learning spellings meaningfully and to safeguard that wrong spellings do not get reinforced.
3. Tell the pupils beforehand the words or the lesson to be learnt the next day so that they come prepared and thus a large number of errors can be avoided
4. The period is to be used profitably in training the pupils to listen with attention and learn the correct pronunciation of words. Interruption and disturbances should not be allowed.

	Team I	*Team II*	*Total*
Pupil x	1, 1, 1, 1, 1,	Bowled by Pupil A	5
Pupil y	0	Bowled by pupil B	0
Pupil z	1, 1, 1, 1,	Bowled by pupil C	4
Extras	1, 1, 1,		3
		Total	12

Writing words on the blackboard, use of flashcards and teaching them how to use a dictionary are such aids that help a lot in forming correct visual picture of the word pattern in the mind.

Spelling games arouse interest and stimulate learning.

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Essay Writing in Primary Schools

AN EDUCATED PERSON can easily realize the difficulty of a child in writing good essays. A child should be trained to write essays as soon as he starts writing. For this he should be encouraged from the primary school stage. Without knowing the content properly it is not possible to write well even for the adults. Children are after all children. Teachers dictate essays and tiny tots learn them by rote. For example, cow is an animal. It has two eyes, a tail and four legs etc. But this learning by rote does not help them at the time of examination because once they forget a word or two, the entire rote learning goes waste. When we now know that children depend on bazar notes for information why should we not teach them something which enhances their capacities to write. It is essential to increase their knowledge by teaching them good books. Only then they can write good essays.

Whenever a teacher wishes that children should write an essay he must fully describe the topic. This would help not only in writing the essay but would also add to the knowledge of the children. For example, when a teacher wishes that an essay be written on the cow which can be seen anywhere in cities, towns and rural areas, he must ask them to write whatever little they know about the cow. They can write about its physical features, uses of milk, its food habits etc. Next day in the class they could be asked to read out what they have written. In this way a lot of material can be collected on the basis of children's observations. This would enhance their knowledge.

A teacher can draw the figure of a cow and inquire from students about its body and the uses of different parts of the body. Thereafter he can talk about food habits of the cow and its uses. Thus the teacher must ensure that children know well about the cow. The children can now be asked to start writing their essays.

The teacher can ask the students to write about other animals also in a similar fashion. Students should be taken to the zoo to see those animals that cannot be seen easily in the neighbourhood. Normally primary school children should be asked to write essays on topics like animals, festivals, fairs, exhibitions and matches etc. Before asking the students to write about the well known festivals like Diwali, Dussehra etc. the children must be asked to narrate their experiences of these festivals. In this way the children can share their experiences with each other and then write about them. The teacher may follow the same procedure as has been already suggested.

The teacher can inculcate in children the habit of narrating their experiences from the beginning. Students can be asked to compile lists of articles that they can see in the classroom. They can be asked to sit in open and write about articles that are used by them in their daily life. A child can learn in this way to write on his own. Gradually this habit would result in their writing original essays.

Teachers can give directions to students and also encourage them. Children will acquire an aptitude for writing and decide about fresh topics on their own for writing good essays.

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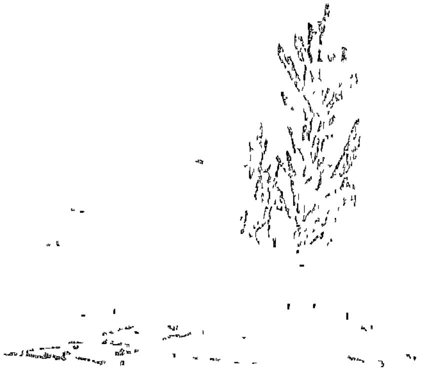
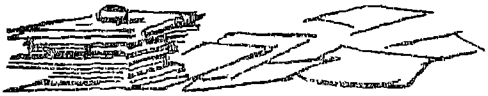


News and Views



Problem Children or Problem Parents !

WHAT MAKES a child a 'problem'? Many of them seem to be the victims of problem parents or problem homes. A child who disobeys, lies, steals, or is just a nuisance, usually gets labelled a 'problem child.' But perhaps the real problem is lack of love and understanding or simply of time spent with the mother and father who care about the child and show it. Children who feel unwanted at home try to find ways of attracting attention to their confusion and loneliness All too often this attracts anger instead of concern This can happen in a rich family as in a poor one But for the poorer child it can be much worse, neglect is one of the many miseries of the daily struggle for existence. Imagine being trapped in a tiny, noisy, over-crowded dwelling, full of the tensions of poverty, having to compete for food and water and living space, having no books to read or toys to play with –and nothing but impatience and blows from parents worn out by ill-paid hard labour. A survey by the Delhi School of Social Work shows that such parents seldom even know that their children have a problem. Most of the children admitted to the school's child guidance centre come from poor families, and 25 per cent of them are regarded as 'problems' by their families. But most of the parents have never thought about the 'problem' child's education or training for the future. About 70 per cent of the parents admit that they are too worried about earning enough to feed, clothe and house their children to wonder what is going on in their young minds So poverty gives birth to bewildered children, who grow up to be rejected by a society that never had time to understand their needs. How can such children—and their parents—be helped ?

A Council of Children

IN THE NETHERLANDS, children are helping to make policies for the International Year of the Child (IYC). The country's national IYC commission decided early in the year that children should have a say in IYC plans and programmes The result was the formation of the 16-member Netherlands Children's Council. How were the young councillors chosen? Letters sent out to 26,000 teachers whose pupils were between six and fourteen years old, telling them all about IYC. Soon after, another wave of letters sent out to two million children asking them what they thought adults should do for IYC and what the young themselves could do. Many thousands of children replied and a jury was appointed to seek out those who had made the most practical suggestions. The children considered for the council had to be at least nine years old. The jury had to make sure that the council included children of both sexes and from different kinds of schools, as well as physically handicapped youngsters. The young councillors have been at work since the Spring, meeting at least once a month in different towns. Their main job is to examine IYC proposals submitted by children and to make recommendation for child welfare programmes for their country.

Why did the Netherlands decide to make its IYC plans in this unique way? Because the adults felt that children do have good ideas.

Tapping New Sources of Energy

WITH THE WORLD in the grip of an acute energy crisis scientists are trying to tap new sources of energy and fuel like solar energy, chemical energy, geo-thermal energy, wind power, organic wastes and tides. This is to try and replace the most common natural sources of energy like coal, oil etc. and electrical energy, which are fast dwindling. The exhibits put up by IIT Delhi at the National Science Fair for Children held at Teen Murti House, like the 'Built in storage solar water heater', 'Solar Cooker','Solarium', (passive heated house) 'Rice Dryer' etc. tried to explain the various methods of making the best possible use of the sun in the service of man. The models were thought-provoking especially for school children who could also understand the various facts of scientific research and its application, particularly in the areas of 'Space Exploration and Solar Energy,' the theme of this year's exhibition. Solar energy, apparently, has immense potential in rural areas where it can be used for supplying power to cottage industries, rural electrification, drying agricultural produce, energizing pumps for drinking-water supply and irrigation and provide cold water storage facilities for preservation of fruits and vegetables.

Science and Village

'SCIENCE AND VILLAGE' was the theme of the week-long National Science Exhibition for children held in Bombay from December 12. It provided the children a good opportunity to acquaint themselves with the problems of rural people, and they came out with highly imaginative scientific models relevant to the rural populace. A 'Simple Churner' from Haryana, a working model of a 'Sugar Factory' from Karnataka, a 'Thermosflask' made with bamboo and coconut shell from Pondicherry and an 'Electricity Generator' using tidal energy from Tamil Nadu, went to prove how deeply the children had probed into the socio-economic problems of the nation and attempted to find solutions of their own in the form of science models.

The recent calamity caused by the cyclonic storms in Andhra Pradesh had apparently shaken the students there. A 'Toofan Shelter' fabricated by them was a panacea for the ravages of cyclone. It is in the shape of a tall building, circular in shape with a large central hall at the top. The structure, supported by a strong circular pillar at the centre, besides other side pillars, is expected to offer shelter to people who rush in when there are indications of a cyclonic storm. The shelter is designed to store food grains, water and clothing. The structure also has a heli-pad on top for the helicopter to land and rescue the marooned.

The model of a 'Solar Tram' which runs on thermal electricity, generated from solar energy, was exhibited by a Bhubaneswar student.

The 'Pulsater' a thermometer-like instrument, could be used for measuring the pulse of villagers suffering from malnutrition. This was presented by High School girls from New Delhi.

There were also models of automatic irrigation pumps from a Rajasthan school and a water husking machine from a school in Sikkim. They would be of much help to the farmers in expediting their laborious task in the fields.

An ingenious 'Solar Kitchen' comprising a box fitted with a water lens and a hot plate was a notable exhibit from Goa. The sun rays converge through the lens and are focused on the hot plate. This enables the hot plate to heat any substance placed on it. The exhibit from Nagaland was a model of an instrument which can be used for teaching mathematics to tribal children.

Middle Ear and Learning

THE University of Tennessee pediatric researchers have shown that recurring middle-ear disease in the first three years of life may cause serious learning problems in children with otherwise normal intelligence.

It was found that children with repeated ear infections or chronic inflammation of the middle ear during the vital language development period were prone to disturbances in auditory processing that could later interfere with their learning to read; spell, do mental arithmetic, follow a sequence of verbal instructions, and answer verbal questions that require attention to an entire sentence.

The researchers report that teachers may feel such children don't pay attention, get easily distracted, have to be told something many times before doing it, or may even be hyperactive. In fact, the children probably don't know what they were intended to do to begin with. During the years when the brain is supposed to learn how to process spoken language, the children were hearing as if they were underwater. The researches indicate that early treatment of middle ear disease can prevent later learning problems, which are evidently permanent, even though affected children may eventually learn to compensate for them.

The Education Digest, Feb., 79

Nurseries Need Complete Overhaul

The present style of nursery education needs complete rethinking of its aims and content, according to Dr Barbara Tizard, a leading child psychologist and reader in education at London University's Institute of Education. While addressing a meeting of the British Psychological society's educational and child psychology division at Southampton in January, 1980 she said: "Nursery education as it is practised in this country, today, is held out as essential for the intellectual development of children. I cannot support that view"

Dr. Tizard said that nursery schools were very much needed but the teachers and psychologists were wrong if they believed ·

☐ that the home was a less effective learning environment than nursery school;

☐ that the sort of language used in working-class homes is inadequate and has a marked effect on a child's later performance;

☐ that it was more important to provide children with a rich choice of activities than to get them used to completing a task; and

☐ that children got more chance to play with adults at nursery schools than at home.

The institute's Thomas Coram research unit, where Dr. Tizard works, has been studying a large number of children both at home and in nursery classes She told the meeting that although the findings show that there are some differences between the social classes they certainly didn't support the over-simplified views that many people held.

Most teachers and psychologists believed very strongly that the most important educational need of young children was their language development. The belief that language used in working class homes was inadequate and had a marked effect on later performance, had led to pressures to get children into nursery classes as soon as possible.

The belief rested on a number of not very well founded assumptions :

> Teachers and other professionals generally saw children in schools or consulting rooms, not in their homes where they and their parents behaved quite differently.
>
> Although working class children tended to acquire a less varied vocabulary than those in middle class homes and were less likely to be encouraged to generalize from their immediate experiences, they usually ended up with an effective and confident command of language.

Attendance at a nursery school, unless it had some special programme, made no difference to their languge development.

The size of nursery classes meant that children could not have as much chance to play with adults as they did at home, where they had to learn to adapt to an adult world. Parents had much clearer ideas of what they wanted their children to learn, and tried to equip them with specific skills. They insisted that children learn to complete tasks properly, while teachers believed that they must not interfere with the way children chose to go about their activities.

"Pre-school education is dominated by this maturation view of providing a rich environment in which the child can browse. I believe that the child is bound to get less profit from it but it seems quite difficult for teachers to change their view", said Dr. Tizard, "I seriously question whether this kind of nursery education is meeting the needs of children in any way We need to rethink what nursery schools are for and how they should be run, and to have curriculum development.

She further specified that this was not an argument for reducing the resources for nursery education, on the other hand, there is need for more resources for providing better nursery schools. □

The Times Educational Supplement, 11.1 80

SCHOOL SCIENCE

A QUARTERLY JOURNAL OF
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Published by the National Council of Educational Research and Training, *School Science* is a quarterly journal of science education.

School Science is an open forum for discussing science education in our schools, its problems, prospects and individual experiences of teachers and students.

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We invite the practising teachers and their students to present their problems and findings in the pages of *School Science*. There is a section reserved for the students, where they can communicate with teachers and students in other parts of the country

School Science, you will notice, is meant both for the teachers and their students It is meant to make learning and thinking a joyous process. And the most important thing is your participation in it.

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The *Journal of Indian Education* is a bi-monthly periodical published by the National Council of Educational Research and Training, New Delhi.

The purpose is to provide a forum for teachers, teacher-educators, educational administrators and research workers, to encourage original and critical thinking in education through the discussion of current educational views, and to promote the development and improvement of educational practice. The contents include articles by distinguished educationists, challenging discussions, critical analyses of educational problems, book reviews and other features.

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THE PRIMARY TEACHER

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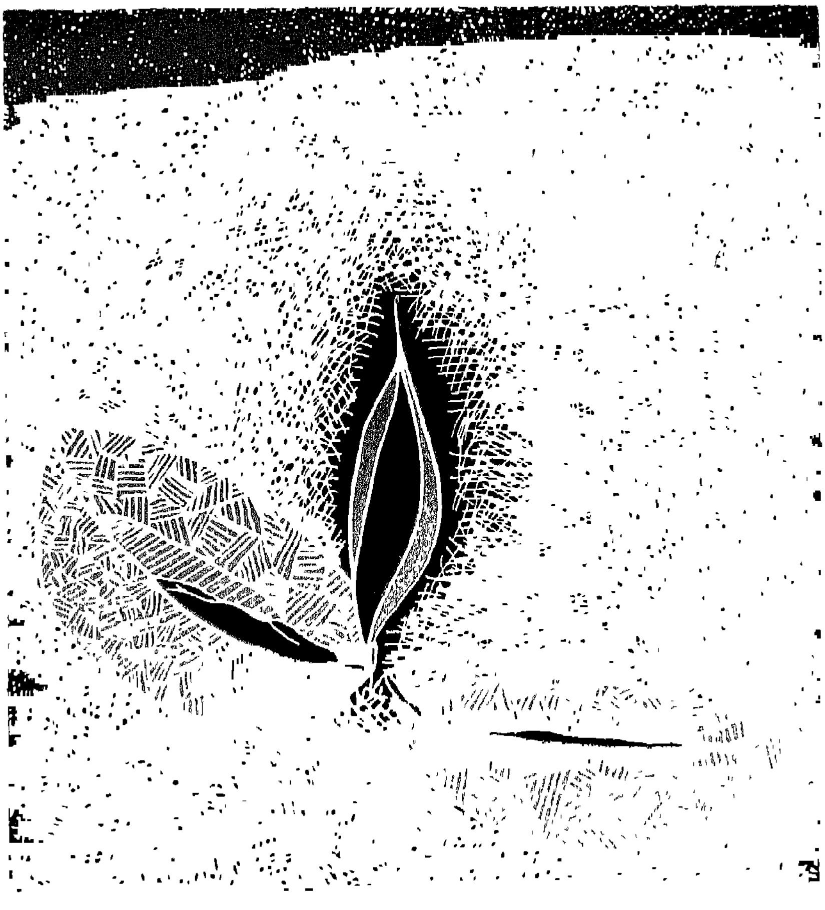

The Primary Teacher is a quarterly brought out by the National Council of Educational Research and Training, New Delhi.

The journal intends to give to the practising teachers and concerned administrators authentic information about the educational policies being decided on and pursued at the Central level. It aims at giving meaningful and relevant material for direct use in the classroom. It would carry announcements of programmes, courses of study, etc., offered at various centres in India from time to time. It also provides a forum for the discussion of contemporary issues in the field of education.

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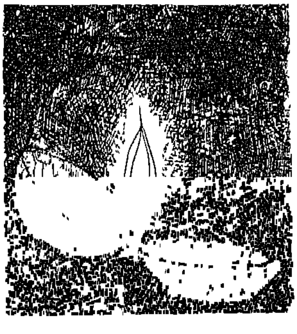

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* * *

Every child comes with the message
that God is not yet discouraged of man

—TAGORE

Editorial

ON THE QUALITY OF EDUCATION

The quality of education is a relative concept There is hardly anything in education which can be identified for sure with quality

TEACHERS at the primary stage are generally concerned with teaching the basic skills of reading, writing and arithmetic They create conditions under which children learn to use these skills for further learning. As they play they improve zest for life including competition, a keen sense of judgement and peer-group participation, besides improving health and vigour Similarly, these three skills constitute the base for developing a positive attitude towards learning itself. The more one develops this kind of attitude the greater are the chances that one is being offered a better type of education. In other words, quality of education depends on helping children acquire this attitude.

The quality of education is a relative concept. There is hardly anything in education which could be identified for sure with quality. At the same time it is possible to say that one type of learning is better than the other. That is how one could determine the quality of education and hold that the learning which is close to the aims of education set for the given institution is of a higher order than the one which is not so. The real purpose of education is to see that quality is made more broad-based and spread evenly in all educational institutions. But the fact is that once quality becomes so diffused it loses its real character and becomes quantity. What the nation wants is that more and more institutions should provide quality education. This quality would depend largely on competition within institutions so that children achieve more academically.

Teachers have a professional obligation to see that not only children learn skills in the three R's they also learn how to learn more and also effectively. ☐

Primary Science Education with Local Resources in Asia

KEITH WARREN

Chief of the Education Section of the Unicef Office in Dacca

ASSUMING THAT any definition of the necessary education for the young people of a country will include, as a major part, a preparation for adult life and further assuming that the need for this is urgent in most parts of the world, it is clear that the world has a problem. From the cities of the highly industrialized nations to the hamlets of the least-developed countries we hear the same tale in different terms, our systems of education are inadequate, our curricula do not suit our rapidly changing needs, neither the requirements of the individual nor those of the State are being met. Poor nations vote large funds only to find that their successful graduates go abroad and that they have the double problem of the certificated unemployed and a huge mass of unimproved peasants. Rich nations have allied problems growing from the same causes and while those causes are easy to analyse, they are hard to change.

Generally we have tried to change things in a way which is essentially conservative (though there are obvious exceptions). Problems have been noted and academics have undertaken to attach them in terms of improved school syllabuses, modified teacher training, and so on, with a spread of out-of-school activities This works for the highly motivated in highly organized societies, but it has visibly failed in the less-developed states which need it most. Perhaps one of the reasons is that often in a poor country the educational planners are far removed from knowledge of the needs and life-styles of the rural poor. The new textbooks remain exotic, indeed incomprehensible, the practical demonstrations ignored by the teachers and the intentions of the would-be improvers thwarted. Consequently the parents vote with their children's feet, they judge that a better preparation for adult life is collecting wood or taking the cow to water.

Studying the Educational Needs

A better strategy than problem-solving by academics for presentation to the people may be to find a method to help the people decide what they need in the way of education, and then to help them achieve it. That, of course, is to stand most conventional education on its head, yet although it would be dismissed by many educational authorities, it has been the method by which the most people throughout history have gained the greater part of

---

*Reproduced with permission from *Prospects*, Unesco their education—the girl learns to cook from her mother and the boy learns shoemaking from his father. Such an education is very limited in the terms of the technically educated societies and it certainly does not make the maximum use of human beings and their resources but it has a certain kind of sufficiency: even in the poorest countries it enables more than half the people to stay alive for forty or fifty years. If they lost that sort of education and had only schooling they would surely die.

An old and experienced administrator in China advised a young journalist in the 1930s, 'If you want to understand this country, Mr. Snow, you must stand on your head and think upwards' It is no bad way to get a fresh viewpoint in any subject and fits the present topic of education for the people rather well. It can help us to see the right questions to ask ourselves, it can guide us to suitable answers, it may show us that change has to go at the pace of the people, or be revolutionary. It will almost certainly convince us that education should begin from the people.

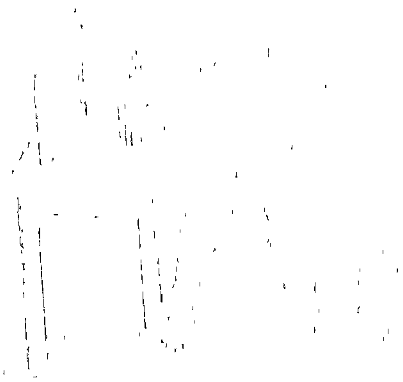
The people have no bridges to reach it.

This, then, is probably where to begin, with the resources available to the people.

Fuller Use of People's Assets

It will remain true for many years that almost the only help, which poor rural people will get is self-help. Yet, although the potential and the opportunities are considerable they often remain under-utilized for want of simple assistance. While the greatest needs include social justice, food, land, health and money, a key need is for an education which will lead people towards helping themselves through a fuller use of their assets and a bolder and better-informed demand for whatever services are available. The difficulties rural people face are not in most cases due to an absolute lack of resources. In Bangladesh, for example, where the present writer works, the land and the water could provide much more food but farmers are unaware of good cheap water-raising methods for the dry season and women with a little land beside the house do not know how to make a little pond an breed fish. Wounds fester, diarrhoea abounds and grain is lost to moulds, rats and insects. The sun beats down unused except by plants and the wind drives only the boats. In all these cases the people are only one or two short steps away from great improvements. This then is a job for education at least, in addition to the other necessary measures.

The clients are of two types. Among the adults it is probably advisable to concentrate on those who must provide food, health measures and an adequate home environment for children, and there are of course the children themselves, whose intelligence and expectations must be aroused and



who must be given mental and manual skills to tackle the years ahead of them.

The Bangladesh Programme

Much more than an educational system is implied by these considerations, since the process will involve diverse methods—from demonstrations of craft items and village technology to participatory planning, from strategy to fine details, from village social workers and democratic village committees to 'do-it-yourself' posters for illiterates. This totality is about to be attempted in a government of Bangladesh programme with which Unicef is giving some assistance. In this present paper, however, the more obviously educational aspects will be presented.

The Material, physical, technical and practical subjects need stressing emphasis to lead young people towards self-reliance, but schools generally seem very poorly equipped for this. Many a class is held under a tree, apparently without any material with which to demonstrate practical science. But appearances are deceptive; behind the class in the village girls sit at looms, women agitate milk into butter, buckets descend into wells, grains grow besides the village (and within it rats and insects consume it). A boy sits beside a stream scrubbing a cooking pot with fire-ashes, unknowingly taking advantage of its caustic alkalis for removing grease and of the fact that it is almost the only sterile matter in the village and that it contains finely divided rare earth oxides which make it a good metal polish. His friend may be playing besides him with a boat made from a leaf stiched with a spike of paddy-stalk into a concave shape so that he can float a little stone inside as a passenger. The first boy is no chemist and his friend no Archimedes but they have experiences which can be built on. We can show them how the potash lye dripped into coconut oil and boiled will make a soap and we can explain why it works (not forgetting to congratulate them, as it were, for being already good practitioners of a scientific process). We can do the same for dozens of toys children make such as boats, kites, slingshots and whistles. The loom of course is a wonderful source of ideas in mechanics. Indeed it is often a surprise for even a sophisticated adult, who may have glimpsed a grandmother sitting in a corner with a handful of cotton fluff, spinning it into thread on a hanging knob of wood, to realize that the twist increases the pressure between the otherwise incoherent threads, which increases the friction from zero to such an extent that it will make a cloth a man cannot tear. The pity is that schools teach friction, if they do it at all, with blocks of wood pulled up inclined planes with brass-and-steel spring balances.

Highly relevant demonstrations of elementary science surround the school house but are neglected. Further up the academic hierarchy teacher-training colleges still spoil their young teachers with blackboard symbolism rather than encourage them with manual facts. And those responsible for supply lament the shortage of hard currency to import spring balances, test tubes and other foreign exotica.

[illegible]

Things are beginning to change however. To give examples from this part of Asia: Sri Lanka has a pre-vocational course that is relevant to current local needs A number of states in India are undertaking teacher training on 'science with local resources' and Nepal is running teachers' workshops along similar lines.

The Indian activity is based on the initiatives of the National Council of Educational Research and Training, New Delhi. Assistance is being provided by Unesco experts and by Unicef They have made a film showing a rural teacher in a typical poor-school situation working with children to make spring balances out of bamboo, world globes painted on water pots, windmill models costructed with hand-fans, and so on. This film is used for teacher training and is associated with a book and some posters showing teachers in detail how to use local objects to teach useful science in an interesting way. An additional advantage which has been discovered by these authorities who have taken up this kind of teaching is that teachers are much less likely to lock up such science 'apparatus', fearful of breaking it. Since the village is the science kit, there is enough material available

A major trouble, however, is that it takes a more able and motivated teacher to do this kind of work than to make children rote-learn book work. To point out for children the scientific principles in a sugar-cane crusher worked by a bullock or a sailing boat on the Brahmputra, or to make a working solar heater, needs a drive and imagination that only a small proportion of teachers possess. Of course even this is a gain to the system, but a further advance is needed.

Teaching by Poster.

The next step, which has been begun in Nepal and which is now about to begin in Bangladesh, is to aim more directly at the children. That is, to show by means of attractive posters how children can undertake educational science activities for themselves, even if the teacher does not know how to do them. He or she also has to get the information from the poster. Of course, teachers have to be taught how to incorporate such activities into their teaching without loss of 'face' and without having their work-load increased. The process at school level goes roughly like this. The teacher says to the children, 'Look here at what they have sent us for the new science curriculum. You see what the children on the poster are using ? (local resource materials) Bring these things in tomorrow'. The next day some of the children appear with what is wanted and the teacher tells them to 'do what you see the children on the poster doing'. In fact, the posters are laid out as step-by-step pictures of exact detail taken from photographs of local chidren doing these things, so the children in this class can certainly do them too. The teacher meanwhile controls the class in a general way but lets the picture do the work. The children work in small groups.

If a group gets something wrong, they soon realize, because the activity does not work at the end (and of course they see other groups doing it right). The teacher notices this, and learns what not to do. But he also sees groups doing it correctly and therefore learns how to do it too. The children are the teachers. But the next time the teacher, if he wishes, can contribute much more and with confidence.

Such a process reduces the need for teacher training (in elementary science) to a relatively brief course on how to use posters rather than the nearly impossible prospect of how to teach science from the teachers' own knowledge This is realistic, given the large numbers of teachers untrained in practical work in the primary schools of south-central Asia for example.

A training course need be little more than an orientation. First they should see a lesson of this kind conducted *in situ* in a village school. Then they should discuss it with the course instructor before getting a set of the various posters and selecting a lesson they wish to do next day. Three or four children from the school are then allocated to them and get instructions on what to bring tomorrow. The teacher is then issued with a simple 'kit' of tools and materials. In Bangladesh they will get a cheap jute bag with a few coils of common iron wire in different sizes, a ball of string, a handful of nails, a local knife, a pair of cheap scissors, a hack-saw blade, a pair of pliers and a torch battery and a bulb. All these things are easily replaceable from the local town (except the pliers, due to their high cost) The teachers use these (and let the children use them occasionally) and then will take them back to their schools at the end of the course Discussions take place after the tecahers have tried out the poster teaching method with their small groups two or three times and then a few selected teachers conduct a larger class watched by the rest of the course. This is followed again by critical discussion. Finally, the teachers spend a morning going around the village to discover for themselves local resources with which to teach or to supplement their lessons. Then they leave with their kit, a bundle of posters and a manual which describes the method fully and gives more detail about each of the poster activities.

The Change over

Such a process of change is not easy for educational systems accustomed to change curricula and teaching methods, not from the village and its opportunities, but from a city-based curriculum development unit and its interpretation of the needs of the poor Sometimes indeed those curriculum developers, returning from a foreign fellowship or conference, raise their sights even higher, mistaking level of application for quality. High quality at the appropriate level, however, is what is needed, and the practical achievement of that is very unlikely except by visiting the educational customers and their environments.

I remember talking with a teacher in Hamja, a village an hour's walk from the nearest road past Pokhara in Nepal. He wanted to demonstrate the physics of pulleys to his class and regretted he had no pulleys. Yet at a tea-shop not five minutes away we were talking to a young river fisherman and inspecting his rod, line and hooks to see whether they would yield us any scientific examples. And sure enough, there at the top of his rod was a pulley. Not a 'proper' pulley with grooved wheel and axle, but a wire loop. All anglers' rods have them. So here was a pulley of a relevant sort, home-made in fact by the fisherman—a village pulley indeed, and on the spot ! As a result we made wire-loop pulleys on our teachers' courses, single, double and even triple ones. The children learned to lubricate the string with water (and better with village-made mustard oil) and thereby came to understand friction better than if they had used beautifully—smooth factory-made wheels. And (a rather strange and encouraging phenomenon) we saw the children for days afterwards running around with wire-loop triple-pulley blocks all correctly strung and lifting small stones. They had made them from scraps of fencing wire. Later we were to see them do the same with balances made wholly from banana plants, pin-hole cameras with a wide bamboo barrel, a nail-hole through cigarette-packet foil on one end and oiled paper on the other, and a dozen other things excited their imagination.

The Resultant Developments

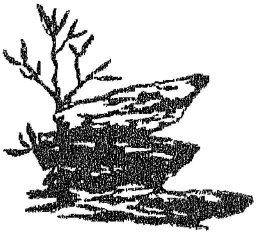
Naturally this village research

nd development, and its results excited us too as curricular developers. It drove us to make the first of the booklets (later to become a series) and to conduct the first of those village workshops for teachers described earlier in this paper. We made our original village photographs and pictures of children constructing the items into teacher-training slides and reduced them to precise line diagrams for posters and the booklets.

The process which leads towards the use of local resources in education is valuable in several ways. It is a process which lends itself well to decentralization of education and the encouragement of local initiative, since the resources and opportunities differ from area to area, and who better to undertake it than the teachers of the locality with the encouragement of sympathetic educationalists (perhaps from the nearest university).

More important, it encourages people to believe more in themselves and their powers, abilities and virtues. It counteracts the debilitating imitation of foreign education and is one of the many steps needed in so many countries to make children's education appropriate to children's needs.

The path to that is very long and we are still far behind □



Teaching through Environment

This article is based on some classroom experiences of the Project Environment Group of the Regional College of Education, Bhopal The Group includes J S Rajput, A. B Saxena, V. G. Jadhao and Renuka Awasthi

THE USE OF ENVIRONMENT for teaching-learning process is in itself not new in education However, recent developments are adding a new facet to the teaching in the primary classes. One cause of this is the increasing re-examination of teaching approaches and realization of the fact that teaching in schools in its present form is haphazard and disorganized and there is hardly any effective learning on the part of children.

Science as an environmental study at the elementary stage is proposed to be interdisciplinary in nature. This approach puts a heavy responsibility on the teachers who are expected to utilize the resources of the environment for teaching. In order to achieve this objective, there is a great need to identify the resource material based on environmental approach and its inclusion in the curriculum. A project has been taken at the Regional College of Education (RCE), Bhopal to identify the environmental aids and develop the instructional material for science subjects for Classes III to V. While developing such material the emphasis has been on using resources which are familiar to the child and are easily accessible to him.

The instructional material thus prepared was tried out on small groups for tentative validation. Later it was tried out in actual classroom situation and experiences were gained which helped in modification of the initial draft. We feel it worthwhile to report here some of the experiences gained during the initial try-out of the material.

Understanding the Concepts

In certain cases it was found that even after successful completion of the activity, the child may not be able to appreciate the logic and concepts involved therein and draw the expected conclusions. For example, while teaching the concept that air has weight, the experiment with two balloons hanging on the two ends of a scale like a balance was performed. It was found that the children did notice the tilting of the scale when one balloon was punctured and the air let out of the balloon, but could not conclude thereupon that air has mass. The clues did not help. Thus, it was concluded that although children can perform the experiment successfully, it does not mean that they learn the principles involved as well The reason may be that the logic involved is above the cognitive level of children. Therefore, the experiment has to be suitably modified or it is to be taken up at a different level.

Drawing Conclusions

Sometimes children were not satisfied with the adult logic. For example, when the experiment using a glass containing cold water was carried out to show the moisture in the air, children did notice the water droplets on the outer surface of the glass but they were not satisfied with the conclusion that the water droplets have come from the air One child suggested that the glass may have pores. To test the hypothesis, suggestions were taken from the children themselves. Finally it was agreed that it could be done by taking another similar glass, wiping it from outside, pouring into it a small quantity of water and observing if the water-drops are still seen on the outer surface of the glass. This was done and conclusions were drawn.

Testing the children's hypothesis was thought to be important for their sastisfaction. This required an instantaneous response from the teacher and a will to act in a more helpful manner.

Learning-oriented Teaching

It is usually believed that each teacher has so much to teach in an academic session that he or she hardly gets time for activities and field-trips, etc. Our experience is contrary to this. Provided that the unit planning is done a little in advance, the course may well be finished in time. The traditional teaching is mostly writing-oriented and not learning-oriented Perhaps this is so because writing correct answers in the examination fetches good marks and satisfies the students, teachers, parents and authorities as well. Whereas, this is not proper from the point of view of learning This also entails a shift of emphasis in the examination system from just recall questions, requiring long answers to the short-answer questions, which can test the understanding of the basic concepts. If this is done, the teacher can utilize a part of the time, earmarked for writing in the traditional approach, for more meaningful and creative activities. However, it cannot be denied that unit planning, planning for the field-trips on the basis of feedback requires a lot of extra effort from the teacher and makes the job more exacting

Sometimes we succeed in putting a problem and the children succeed in telling the method of testing the hypothesis. For example, while teaching that there is interparticle space in the matter, our students did explain the experiment to prove this using water, making sugar solution and comparing the volume of the initial water and the solution.

We shall now come to a very significant and important problem that every science teacher has to face and we also faced while teaching. More often than not, the child's proficiency in the language is much below his mental ability to understand the concept of science irrespective of his position on the performance scale. Many a times the children use a dialect at home which is different than that used in the class. Therefore, the science teacher also has to take pains and spend time for promoting the proficiency of the children in the use of the language. We did this by helping students to construct their own sentences, for expressing the ideas understood by them for working out the results of activity, etc., instead of asking them to memorize the same prototype sentences

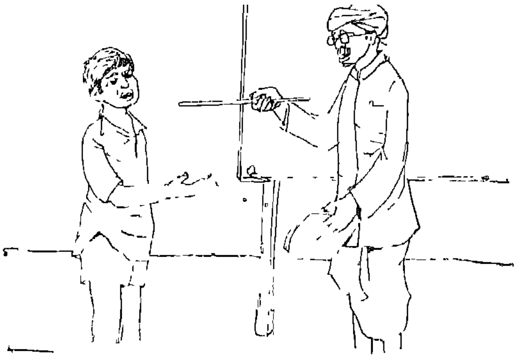
During teaching, we also evaluated the children throughout the session. This was done by maintaining a daily record of the responses given by the children while teaching was going on. These responses were divided into four categories and these responses were assigned the values as follows :

Type of response	*Value*
Wrong/no response	0
Right response	1
Good response	2
Very good response	3

These responses were judged as right, good and very good, according to the degree of novelty. On this basis, a cumulative score card was prepared for each student, from time to time. Children were also evaluated terminally, twice in the whole session, through oral and written examinations. The areas covered in the oral and written examinations were identical. A short questionnaire testing the environmental awareness was also administered in the end of the session. This was done without any intimation to the students and the scores obtained in this were still comparable with the written and oral examination scores.

We thought it worthwhile to see the correlation between the scores obtained by all the children in various types of evaluation. For Section A the correlation of the response scores with written test scores was 0.34. Although there is no reason for these scores to be strongly correlated, similar correlation of 0 35 was again found for the scores in the next term. In case of Section B the two correlations were 0.46 and 0.35, respectively. This is in consonance with the results obtained for Section A.

Another important finding was that the correlation between response-scores and oral examination scores of both examinations and for both sections was consistently higher than the correlation with the corresponding written examination scores. Typical high values were 0 64 and 0.55. This may be due to the fact that the proficiency in written English is in general poor so that the children on the average are not able to either comprehend the written words or express in writing what they have understood. □



“Spare the rod and spoil the child”

SUDESH MUKHOPADHYAY
Regional College of Education, Bhopal

THERE is a famous old saying: ‘Spare the rod and spoil the child’. For quite some time, it was practised honestly in most of the schools. Even today some teachers practise it Their number, though very small as compared to bygone days, is still large enough to cause anxiety Some researchers have tried to find out whether it is really necessary to punish children. Some of their findings have now been incorporated in the curriculum of teacher education. During teacher-training, the trainees are taught not to punish any child as far as possible. But when these trainees enter the regular teaching job, they face a dilemma : What is correct, the way punishment is used in the schools or what they were taught in the training college ?

We can recall such occasions during our school days when the pupil sitting on the first bench was told: “Why are you saying *mein, mein* like a goat, when asked a question. Don’t you feel ashmed of yourself. You have grown up tall like a camel but without a grain of grey matter.” Or some other equally cruel remark was made to make the child feel embarrassed. The teacher probably may have got irrtated while saying so, not realizing its repercussions on the child’s sensitive mind with the result that the front-bencher became a back-bencher not only in connection with his seat in the class but also with participation in the learning activities. Perhaps, he became unreachable as far as that particular teacher was concerned.

Conversely, if a neglected child of a class was found drawing a satirical sketch of the teacher and instead of scolding he was praised for his art of sketching. This child not only started looking at that teacher with respect and gratitude but also learned to draw so well that his sketches found a prominent place in the school exhibitions.

Such incidents throw some light on the fact that every word that a teacher utters is very important for the puplis, especially for the younger ones.

In schools, during practice teaching, the instructions given to trainees, about the punishment are usually criticized. Trainees are told not to punish the children till it becomes an unavoidable necessity. The regular teachers are of the opinion that without punishment the discipline of the school deteriorates, the students lose respect for teachers, the students become irregular and they do not study well.

The experiences of every teacher regarding giving punishment to children are different. Every situation is a particular case in itself. Even then there are a few points, about which if we seriously think, we will come to the conclusion that there are very few cases where punishment is really required.

On the one hand we are talking about universalization of elementary education and we recently celebrated the International Year of the Child while on the other hand children are being punished for not having slates, for being late, or for failing to concentrate in the classrooms. We feel that by scolding them we have done our duty as a teacher. Have we ever tried to find out the reasons behind such cases of indiscipline ? The research reports and surveys have led to such findings that quite a large number of students are either unable to go to schools or drop out of schools because they are detained at home for helping parents in their work; they do not get enough food and the economic conditions of the parents are too bad to fulfil the minimum requirements of formal education. In this context, are not the teachers guilty of being ignorant of the known facts and punishing students for the so-called indiscipline —at times to the extent that they cause the students to leave school ?

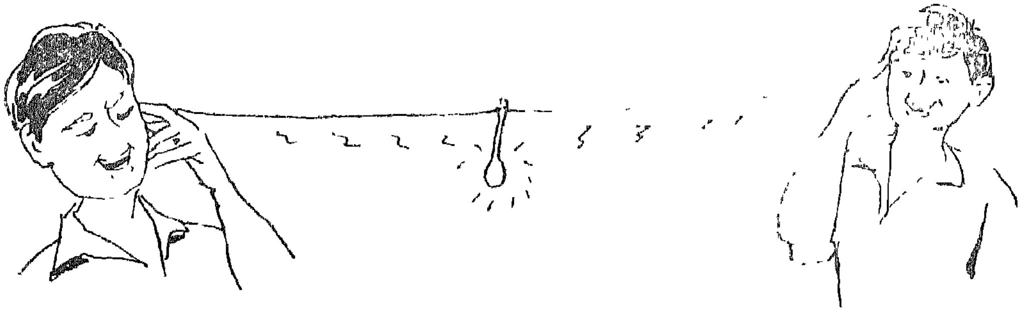
This article tries to draw the attention of educational planners and administrators to these two points: First, to finding out the justification for punishment that a teacher gives to his students. Every teacher should ask himself two questions: It is a must ? Is not there any other way to deal with the situation ? Second, if at all the punishment is given, is it necessary to give the same type of punishment in all the situations or should we take the decision with some soul-searching ? An episode may clarify this point : A particular student did not come in the uniform to the school. The teacher asked him to hold his ears in the school assembly and made him stand in a corner. The student spent the whole day thinking one thing only : "I have only one pair of uniform. If I had put on a dirty uniform, I would have been punished, I did not put it on, even then I am being punished." But was it his fault that he could not have two pairs of uniform or his mother did not have soap to wash it ?

Such requirements of formal education do become a problem for poor parents, which free education will not be able to solve. The teacher's modes of tackling such problems either encourage the students to continue or to drop out. In such cases is it not possible for the teacher to discuss the problem with the child in private rather than in the school assembly ? Would not the repetition of such incidents result in either the students leaving the school or making him feel proud of breaking the rules and regulations of the school ? It is for these reasons that a teacher should justify the administration of punishment and also its form and mode. □

The World of Sound

CATHY SPAGNOLI

Cholamandal Artists' Village
Madras



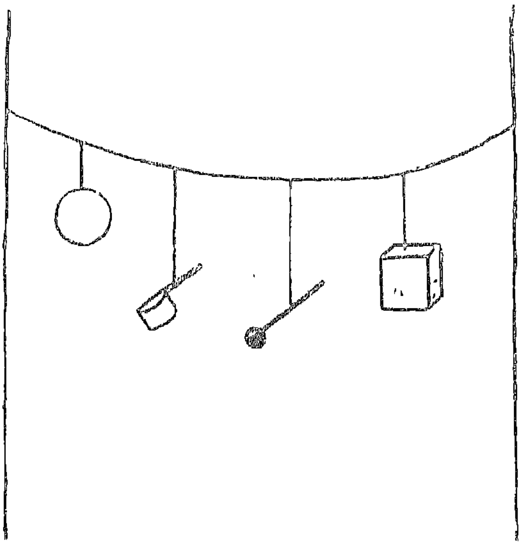
STOP A MINUTE. Close your eyes and just listen. There's a world of sound around you that will provide rich material to be explored by the children in your class. A class of eager young children is a most appropriate setting to begin sound experiments that will sharpen their faculty of hearing and unfold in front of them all together a new world of sound experiences.

Unfortunately, in our changing society with its insistent loudspeakers, traffic noise, radios, etc. many of us have already learned to turn off our ears. We must help children to become sensitive, discriminating listeners, aware of their sound environment. Sharing some of the following activities can help them improve their auditory discrimination as well as their aesthetic response to sound and music.

As in most class undertakings, you as the teacher have a vital role to play So begin by sharpening your own hearing and sound sense. You start by testing the objects around you for sound qualities, spend an occasional minute simply listening, make a list of angry or wet or lonely sounds, experiment with the range of sound possibilities your own voice and body possess.

Now you're ready to turn on your class to sounds ! Here are a few activities to help create a sound setting. You may develop your own activities as well once you have tried out these ones :

1. Sound Walks — around school, the neighbourhood, recording sounds in lists or on a map.
2. Sound Wall--hang a rope across the room, suspend various found objects which make different sounds (Fig.1).
3. Hide the Sound Games —in a group or informally, ask a child to iden-



tify the 'where' and 'what' of a hidden sound.

4. Echo Clapping –you clap a pattern (using different parts of the body), others repeat it.
5. Body Sounds Orchestra—one child conducts several others, each contributing his/her own unique sound.

From listening and identifying sounds you can move on to simple experiments with sound. Why not have a table or a corner of the floor set aside for sounding experiments ? Place on it various materials like coconut shells, strings, silverware, boxes, tins, sticks, etc. and let the young sound scientists actively explore. Encourage them to observe what happens when they shake, hit, scrape, rub, swing, strike each object. Guide them to predict the type of sound which will result from different materials. You may also help them record what the sounds reminded them of, which were the most frightening, placid, thrilling, musical or disturbing sounds, etc Later on you can use these sound impressions while presenting plays, songs, stories, poems and such other activities

Experimenting with Vibrations

After a round of investigations, see if the students can discover what all the sounding objects have in common. They may observe that an object produces sound when it vibrates rapidly; sometimes we can see this vibration, sometimes we can't. Ask the children to find objects with visible vibrations : perhaps a rubber band, or a wooden ruler held against a table and hit, or a few grains of sand sprinkled on a drum-head.

For a dramatic experiment illustrating vibrations and their mode of travel, try out this experiment and then demonstrate it to the children. Get a one-metre long piece of string and a metal spoon. Tie the spoon in the middle of the string and wrap the ends around the index fingers of each hand Next, put your fingers in your ears and listen. Then start swinging the spoon, listen again. Finally, with fingers still in ears, swing the spoon and strike it against a solid object to make it vibrate rapidly. What do you hear now ? Extend the experiment by tying other objects to the string instead of a spoon; note down the differing responses.

Once children have established the reality of vibrations, some of them may wish to understand why some sounds are higher or lower than others There are different ways to make sounds higher or lower. Probably one of the first ways was discovered accidently when someone picked up a piece of a reed or a straw and produced a sound through it after patient blowing Then, our musician-scientist found that by breaking off some of the reed the sound changed.

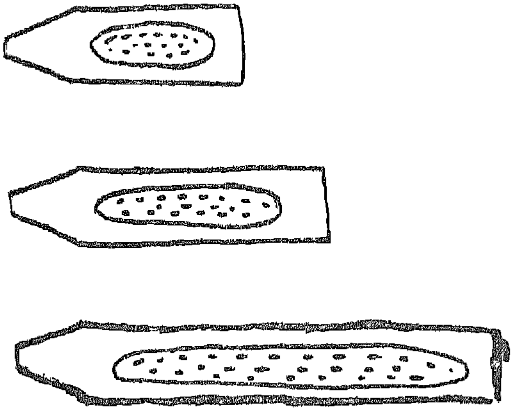


FIG. 2

You and your pupils can try out this simple experiment with a plain paper drinking-straw. Trim the edges at one end to make an upside down V-shaped mouthpiece. Squeeze it slightly and blow until you get a sound. Snip off some portion of the straw from the bottom, now blow and listen. Do you find a change in the sound, keep cutting and listening and note down your observations (Fig 2). As the vibrating column of air inside the 'flute' becomes shorter, the sound becomes higher. If you want a higher sound, you must make the vibrating material vibrate faster. One way to do this is by making the material, be it wood, air, metal, string, etc. shorter. Another way to get a higher sound is by tightening the vibrating material as is done while tuning a string instrument.

Get a piece of thin rubber, thread or a rubber band. Loop it around your fingers loosely and pluck it. Then stretch it more tightly and note down the sound changes.

Another experiment which children will really enjoy is to make a musical instrument. In the Caribbean it's called a 'mosquito drum', in Africa 'pit harp' and its cousin in the U.S. is known as a 'washtub bass'. The original version consists of a hole dug in the earth, covered with animal skin from which a single string emerges to be pulled up and tied to a nearby branch. By moving the branch and plucking the string at the same time, a variety of musical effects can be made.

If it is not possible to conduct this experiment you may try out a slightly different version, although the original is the best For this you will need three basic parts—a string, a stick to hold the string, and a sound-box to make the string sound higher.

You may use different materials to make a sound-box. Basi-

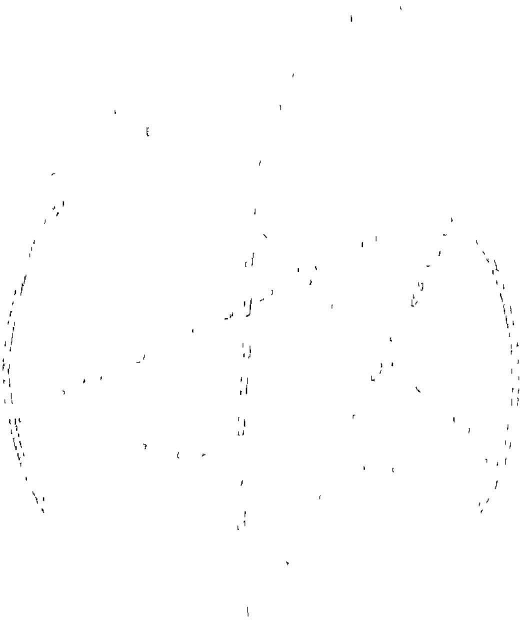


FIG. 3

cally, you require a container which will let the sound bounce around inside it, gaining in richness and volume, and then escaping (Fig. 3). Try a neatly cut half of a coconut, an old milk tin, a cardboard sweets box or a clay pot. Make a small hole at the top of the sound-box. Tie your string around a washer, a nut or a piece of wood and then thread it through the hole. Tie the other end of the string to a stick, a pencil or a cardboard roll. Be sure the string is quite tight as you attach it to the upright stick (Fig. 4).

The instrument is ready to play Try different strings and different sound-boxes with the children. See if it makes any difference in the quality of the sound where the strings are attached along the stick. Try to invent a good bow; transform it in any way possible to make a 'sister instrument'.

Bring other musical instruments in the class and let the children look at them. See if they can discover a few more principles of sound. Where is the sound coming from ? What's vibrating ? Is there a sound-box ? What shape does it have ? Why ? and how are changes in pitch and loudness accomplished ? Can anyone think of a better design ?

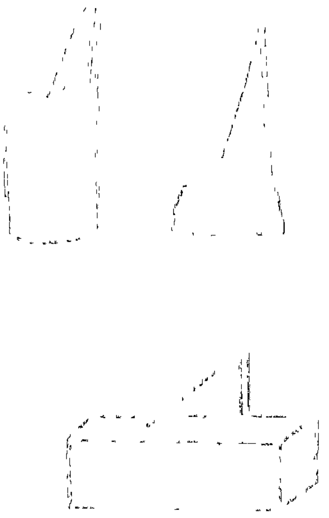


FIG 4

Hopefully, these activities will be just the beginning of a long and exciting relationship between the children and the world of sound and music. Once begun, this relationship will diverge into endless possibilities. So, why not stop, listen and plunge right into the world of sound ! ☐

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Bhubaneswar

CHILDREN'S MEDIA LABORATORY (CML) like a language laboratory is normally regarded as a series of facilities or resources to be used for the fulfilment of limited tasks. Depending upon the convenience these facilities and resources may be housed in one place instead of being portable or mobile. This is partly related to the degree of efficiency of the laboratory and economy of its installation. Such laboratories are also set up on pedagogical grounds concerning the need for and the availability of resources.

As in the language laboratory, it is felt logical to proceed from an analysis of the language—teaching learning problems to a consideration of the number, type and arrangement of the facilities required to deal with them. In CML also various media and materials, suitable for children are not only housed together, but are also utilized for tackling specific learning problems.

It is believed that the cost of CML like language laboratories is too high to be properly maintained and developed. But such estimation is exaggerated and as in the former there will not be so many spohisticated electronic gadgets and machines, which would require skilled servicing tasks. Over-use as well as inappropriate use leads inevitably to discouragement and disillusion. A CML should be so equipped that it provides material for developing specific capacities of young children. As children are to handle, manipulate and utilize these materials and media, there should not be any constraints and reservations on account of expense and complexity. These media and materials should be as inexpensive as possible and accessible to all children to play with them freely and jo fully Many of these things may be produced and multiplied using low-cost raw stuff. These materials can be used again and again by the children in course of manipulation, improvisation and multiplication.

A National Model

One such children's media laboratory has been set up at the Centre for Educational Technology, NCERT, New Delhi with the Unicef assistance. It is mainly intended for the young children of 3-8 years. This is the most significant age-group from psychological and pedagogical point of view.

Although in our country resources are in abundance and materials suitable for children are available in different regions with specific features and novelties, they are not well-graded and properly sequenced. Therefore, attempts have been made to develop the CML with four aspects . Educational play materials, print and graphic materials, radio programmes and projected aids.

With a view to reducing drabness in the existing teaching practices and making learning process interesting as well as effective, suitable toys and games should be utilized both by the teacher and the students The CML has taken up a programme of locating and spelling out the educational implications of these materials. A systematic survey of these materials has been conducted in a few states and attempts have been made to develop certain toys and games using locally available low-cost and no-cost raw materials.

Since some research findings have revealed that Indian rural children have difficulty in learning to read, particularly in recognition of graphics, discrimination of forms, colours, etc. and in auditory discrimination, a project has been taken up to produce picture books originally in Hindi. It is expected that this will develop children's interest in reading and help them to learn to read better. These books are of two types; with one simple sentence and large illustrations and with more sentences and small illustrations. In order to make them suitable and attractive to pre-school and primary school children, these books are illustrated in varied colours and printed in bold type.

The CML has developed a set of booklets written in simple Hindi giving guidelines and suggestions to parents and teachers on the organization of rich learning experiences for young children through suitable activities like story-telling, games, music, puppetry, etc. These books are so simple and clear that even parents can help children in conducting these activities at home for promoting their development. A collection of children's songs and rhymes in Hindi has also been brought out for pre-primary and primary schools.

Another important programme of the CML is radio broadcasts consisting of two major sectors, monitoring and evaluating the appropriateness of children's radio programmes and developing prototype programmes suitable to the age-group 4-8 years. Monitoring panels properly oriented for the job have been set up to systematically study the children's programmes and produce prototype taking into account the findings of the studies. For instance, as it was found that students' participation would improve the broadcasts, programmes prepared by the CML incorporated activities providing ample scope for children's participation.

Yet another programme is the programme for producing projected aids like films, slide-cum-taperecordings and such other aids. But these are rather expensive media and as such cannot reach out a large number of children living in poor rural environments.

Attempts at the State Levels

National models and prototypes of various media and materials can be produced, but they cannot be adequately and effectively utilized at the state levels. Every region, even in one state has its own distinct language, distinct toys and games, their own folk music, nursery rhymes, folk tales, etc. In order to make them quite suitable and educationally useful, these materials have to be identified, improvised and produced at the state levels. Young children will not enjoy the translation or adapted versions of these materials. They will like original and unsophisticated materials from their immediate environment and local situations with which they can associate their experience and feel familiar with.

Further, most of our children come from rural settings and at times deprived conditions. Majority of them are even first generation learners. They not only require stimulation, but also an appealing learning environment so that they like to learn on their own. Under the existing conditions, they find the schools dry and dreary, textbooks and other materials uninteresting and teaching drab and boring. This has resulted in massive drop-outs and huge wastage and stagnation. Therefore, all attempts need to be made to introduce interesting means, methods and materials in our pre-school and primary classes. The teacher can make indigenous toys and games from local environment with some imagination , affection and resourcefulness They can always find out suitable materials everywhere and make their teaching and other educational activities interesting and exhilarating.

National as well as state level workshops will not only provide ample scope for location of suitable materials through collection and exhibitions, but also impart practical training to pre-school and primary school teachers and teacher-educators. These will also help in changing the attitude of teachers and create an atmosphere of inspiration and emulation. The CML at the national and state levels can be developed and strengthened with innovations, improvization and cross-fertilization. They will in fact be the learning resource centres providing enormous facilities for development of children's potentialities and their latent talents. ☐

Teaching through Dramatization

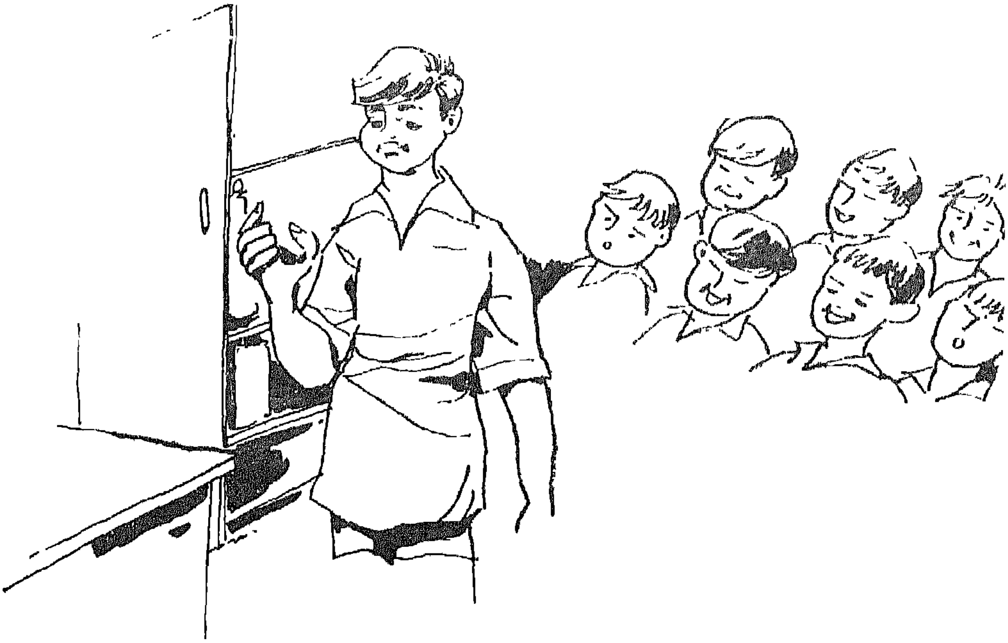
SHIV RATAN THANVI

WE TRY TO TEACH through several methods of teaching. There is, however, one medium which has not been used very widely. This medium is dramatization. If this is used on a wide scale, we may find new ways for the physical, moral and emotional development of the children. Don Chiffets organized a workshop and found that children can be brought together by dramatization. This technique can help them in their emotional development and it can inspire them to learn from each other. His experience is, however, available in the form of a book entitled *Theatre in My Head*. Fifteen children in the age range 8-11 participated in this 13 day workshop. This workshop provided an opportunity to the children to work together, to know and express themselves. Only dramatization can provide such medium and encouragement in which the children can behave in their real self by expressing themselves freely At least this is what Don Chiffets had visualized.

The author in his book has put his experiences minutely and sincerely. He loves children and inspires them to act in a dramatic situation through several techniques. He asked the children to play a simple game : "Do what Simon says". He said, "Simon says, lie down" and the children will lie down. He said, "Simon says behave like a snake" and the children would lie hissing on the floor. "Simon says, be a demon" and all the boys and girls, leaving the role of a snake, would start acting as demons according to their imagination. Someone would stretch out his hands, someone would make eyes or make faces, a few would roar and others would acquire the posture of a killer. Thereafter "Simon says, walk on the rope like an acrobat" and the children would really start walking cautiously on their toes, keeping their bodies straight and balancing with their arms. The children would really start feeling as though they were not walking on the floor, but on a tight rope.

The next game he asked them to play was to pretend to talk on telephone without a telephone being available. He asked them to practise several other similar games. He explained to them how and what they had to do while enacting to draw water out of the well. They were asked to take care that the acting is so realistic the audience may immediately know as to what was being enacted.

Once a child said we will not tell you what you should do. You imagine any role and act accordingly and thereafter ask us whether we have followed what you were enacting. A child attempted to climb on a table, taking out something from the almirah and drinking something. The imagination of the child was so realistic that he really felt the taste of what he had taken. He also made a face



Toys Can Also Teach

A PRIZE-WINNING EXHIBIT

Children love to play but how many children in our country have an access to good play material? Only a few from the privileged class. Should the others be deprived of this pleasure? Or, should we try to get them what they lack? That is what the competition in making educational toys tried to achieve, though on a small scale. How the Child Study Unit (NCERT) set forth the idea is reported here by **Archna Sood.**

SIX TEACHERS received awards for making educational toys for pre-school and primary school children at the National Level Competition organized by the Child Study Unit of NCERT in NIE Campus on 10 March 1980. Shri B. Shankaranand, Union Minister of Education, distributed the prizes and certificates to the participants

Making learning an enjoyable process was the main aim of this competition in toy making Schools must be a place of attraction for children, where children love to come and learn by play-way activities This can be achieved by providing them with attractive toys And who else can tackle the local resources better than the teachers in order to make such toys for the children. Toys that are cheap and related to the child's environment, toys which stimulate his learning faculties and invite him to experiment and then draw conclusions. How far it is feasible—the Child Study Unit of NCERT wanted to find out. And so it started a National and State level competition in toy-making for the pre-school and primary school teachers in July 1979.

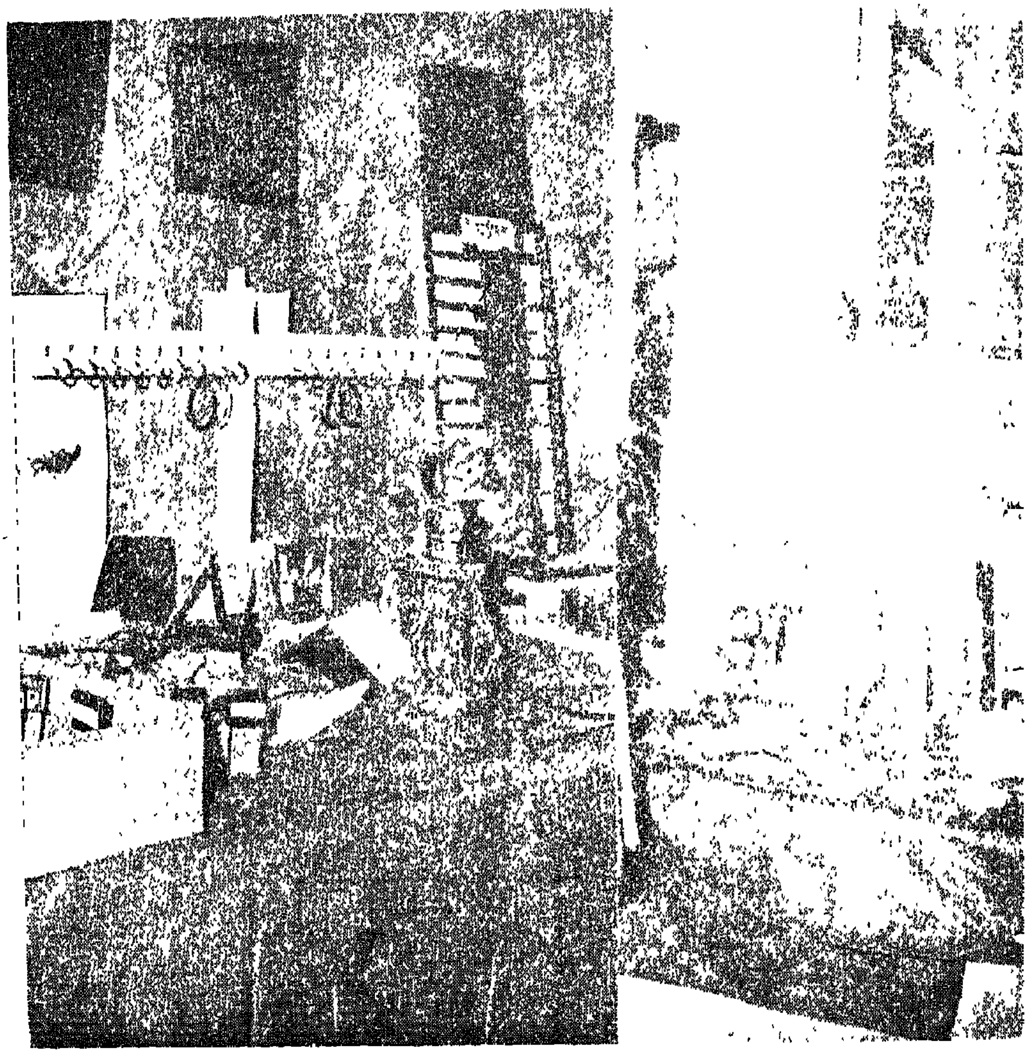
The objective of the competition was to give initiative to the teachers to try out their ideas in toy-making with local resources, specially exploring the ways to use waste material. The entries were judged on such merits as low cost and easy availability of the material used, easy replicability of the toy, its educational potential and the teacher's write-up on the entry.

First the competitions were organized at the State level—the entries were exhibited wherever the facilities existed and the prizes awarded. The prize-winning toys from different states were then exhibited in the NIE Campus and the first prize-winning entries out of these were again judged for the national level competition. The exhibition was kept open for a week so that the teachers could gain from each other's ideas

In all there were seven prizes, first prize of Rs. 500, second prize of Rs. 300, third prize of Rs. 200 and four consolation prizes of Rs. 100 each. The award winners were .

First Prize

Shri Ramesh Chandra Hirole
Assistant Teacher, Primary School
Sardhala Dhar, M.P



Second Prize

Smt. S. Lama
Mawprem L P School
Shillong, Meghalaya

Third Prize

Smt. Sita R. Iyengar
Udaychal Primary School
Vikhroli, Bombay

Consolation Prizes

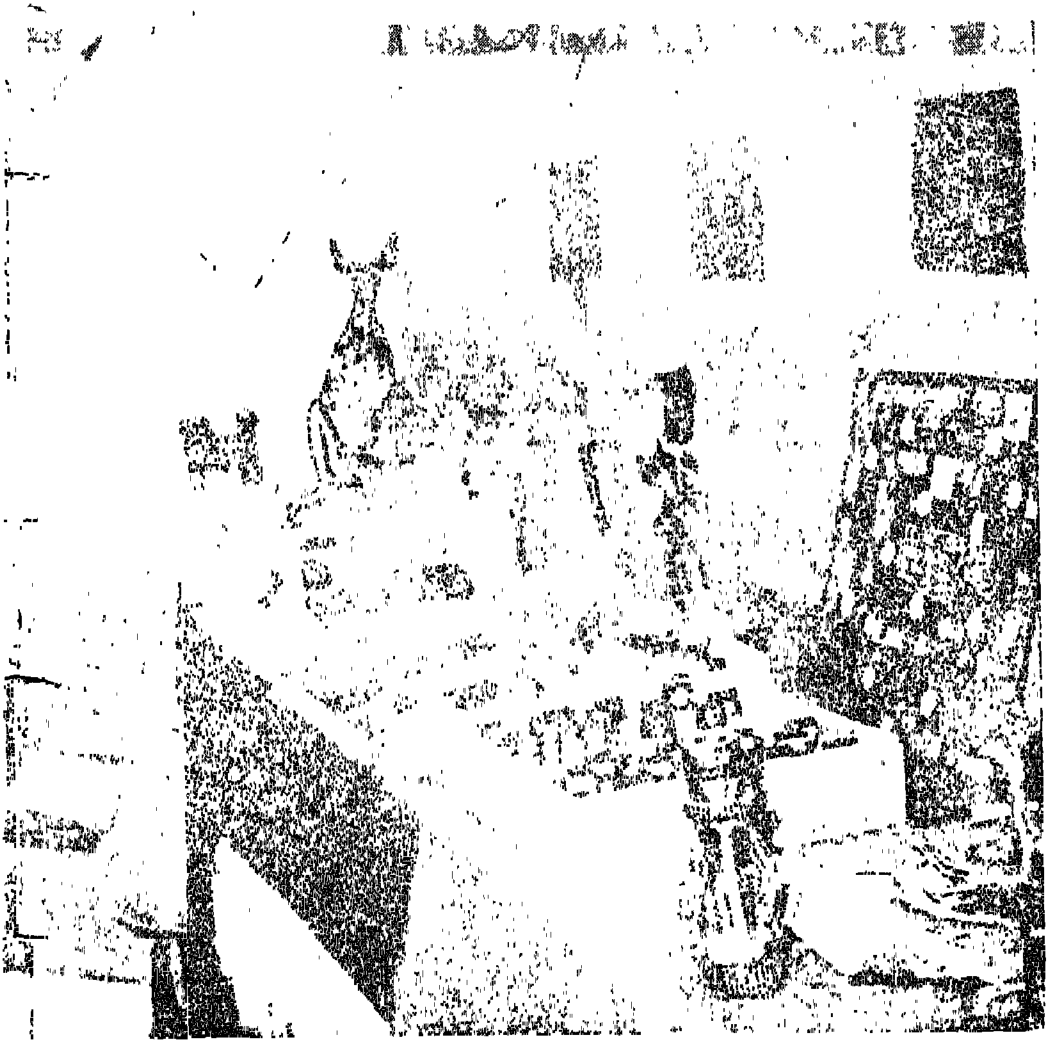
1. Shri Gurudas G Arya
Government Primary School
Khalwade Conogona, Goa

2. Shri Suresh Chandra Baliarsingh
At. Niranjanpur, P O. Kantia
Distt. Puri, Orissa

3. Smt Ranjani Chari
Air Force Central School
Delhi Cantt., Delhi

4. Smt. Sanjiwan Mebai
St. Luke Public School
Solan, H P

SOME OF THE PRIZE-WINNING EXHIBITS



What triggered her to make this number game ?

When Smt. Sita R. Ivengar, one of the prize-winners, read in the paper about a competition in toy-making, at once her craft-oriented mind triggered off to devise a toy that can draw children's interest, hold it for the time they play with it and make them learn something in the process. What could be most handy to prepare it, she then thought. Somehow the empty match-boxes came to her mind. These are available in plenty in every household and so are some empty cardboard boxes. So, these provided her with the basic raw materials for her educative toy—The Number Game.

THE AWARD-WINNERS

What she needed ?

All she needed was to collect a few dozens of empty match-boxes, cut out calendar dates from 1 to 12, coloured glazed paper, some adhesive, two wooden dice, one or two sheets of decorative paper and may be some more knick knacks. The end result is here in the picture. Yes ! It's a Number Game.

What is it ?

As you can see in the picture (p I) *there are match-box figures standing on a numbered board Each match-box is inscribed with the name of a Hindi or English month. There are two sets of 12 match-box figures The board is divided in two parts each one having squares marked from one to twelve, representing sets of names of English and Hindi months respectively There are two dice with number markings from 0 to 5 in one and 0,3,4,5,6 and 7 in the other dice*

How to play ?

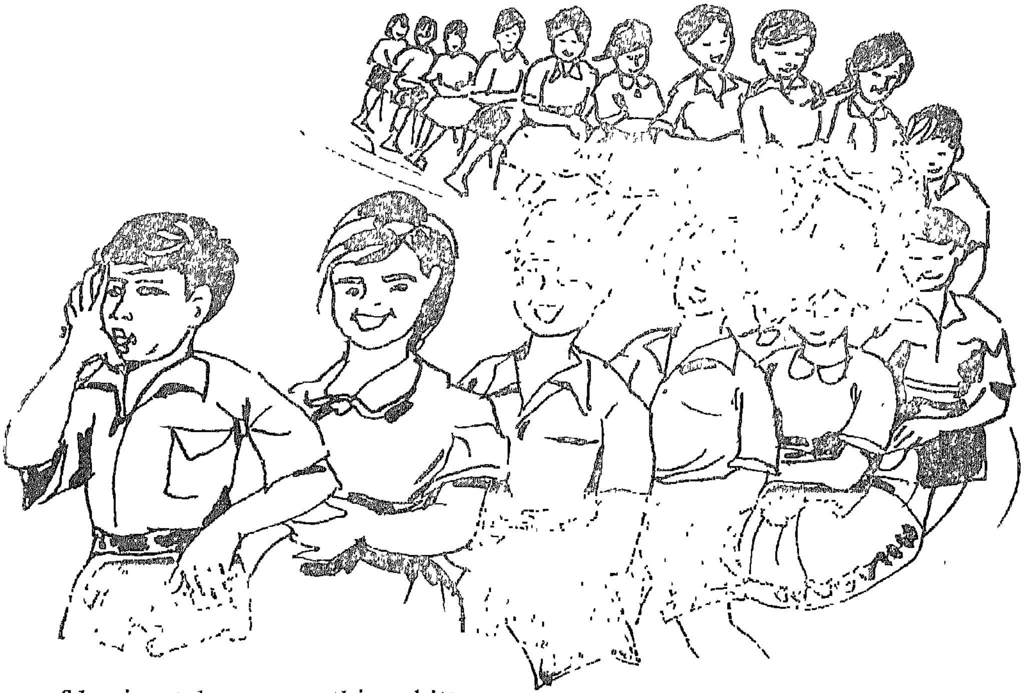
Well ! it is to be played like chess Two children can play the game at a time. One child takes the figures representing Hindi months and the other one the English months The first child will throw both the dice together and add up the numbers shown on the dice For example, say the numbers are 5 and 2. Their total is 7, which stands for the seventh month of the year, which is July in English system. The first child should now pick up the match-box figure representing the seventh month of the year and place it at No 7 on his side of the board Then comes the second child's turn: He plays it the same way and then places the match-box figure for the Hindi month on his side of the board in the appropriate square. Thus the game continues The child who is able to place all his month figures first on the board wins the game

What about the game's educational value ?

The toy helps the children to add up instantaneously. Very soon the names of the months, both in English and Hindi, will be at their fingertips. They will also learn the spellings of the months without any difficulty.

Any problems in replicability

None at all Children themselves can collect the match-boxes, etc. and prepare the game with some guidance from an adult. How attractive and neat the game appears to be would, of course, depend on how dexterous and careful the children are in preparing the game. □



of having taken something bitter and then got off the stage. Almost everybody in the audience could identify that he had opened his father's almirah and tasted liquor, a few thought it was a bottle of medicine. When the child was asked to give the answer he merely made a face and said nothing. One child stood up and asked a very good question. While acknowledging that the acting was complete he thought whatever the person was trying to drink, whether liquor or medicine, he did not put the bottle back. Everybody accepted that this child was observing the actions very closely and his comment was quite intelligent.

One more thing is necessary here to understand, when the child was given freedom to act according to his choice, he would choose a subject from his own household experiences Here he could express even his suppressed desire. What the elders do openly the child too wanted to do secretly. The child who pointed out the flaw in the acting had detected it as beautifully as the child who enacted the role. In this way both must have gained an experience in expressing their latent feelings.

Several roles of this type were assigned to children in this workshop and on the last day all of them were asked to put up a small drama show.

These things may appear trivial, but if our institutions paid any attention to them and if the children were given the courage and freedom to express their feelings they will develop both emotionally and morally. Thus along with the institution the entire future of the society could also improve and become pleasant. ☐

Mathematics can be Fun

HEM RAJ GARG

Headmaster
Government Middle School
Dhuri, Sangrur, Punjab

MATHEMATICS is generally considered a difficult subject and meant only for a few gifted students Majority of the students lack interest in mathematics. They don't try to learn it properly and when unsuccessful develop a sort of inferiority complex. They may try to remain away from mathematics classes due to one reason or another Some do not understand the problems, which lead to inattentiveness, irregularities and aversion for the subject. Sometimes students also develop the habit of copying from the intelligent students in order to do well without understanding the subject, with the result that fundamentals become a burden for them and the subject boring and unlogical. If efforts are not made in time to make them understand the subject or teach it in an interesting manner they may develop aversion for the subject or become frustrated due to not being able to do well.

Mathematics too can be made very interesting and easy to learn if taught properly and in an interesting manner. There are a few activities which can help the teacher to make mathematics more interesting.

10	15	14
17	13	9
12	11	16

FIG. 1

A Magic Game

Magic squares and pentagons can be illustrated to the students. Students solve such problems with great interest. For example, one magic square of sequential integers 9 to 17 is given above in Fig. 1. The sum of the numbers of this square in any row or column comes to 39.

It will be more interesting to explain its formation.

Step I

Write down sequential integers (9 in this case) in small squares as in Fig. 2.

Step II

Draw another figure like Fig. 2 and extend the middle squares as shown by dotted lines in Fig 3.

Step III

Write down the first integer (9 in this case) in the extended

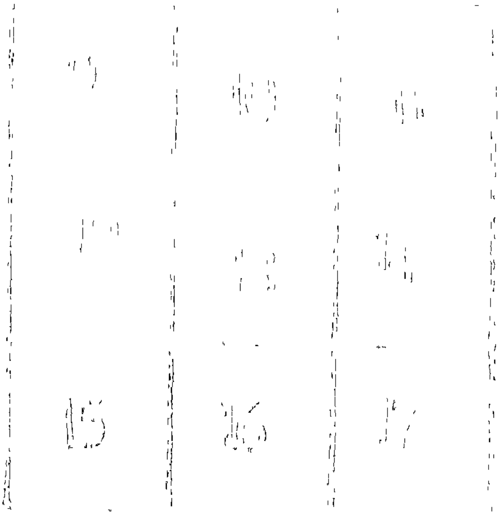


FIG. 2

horizontal square on the extreme left. Now fill in the next two squares, counting diagonally upwards as shown in Fig. 3. Now, come to the next downwards extended square and write down the next integer, i.e. 12. Again, go diagonally upwards and fill in the sequential numbers 13 and 14.

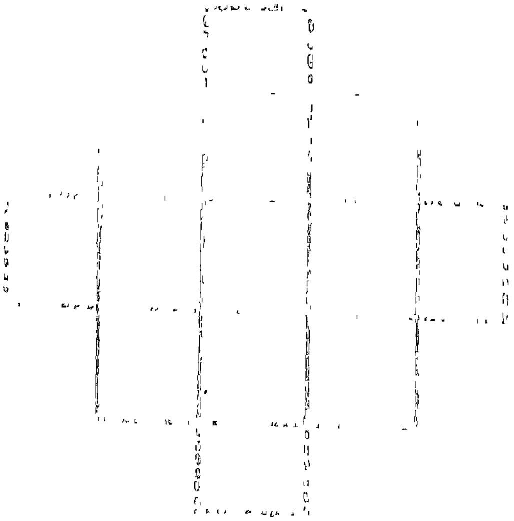


FIG. 3

Lastly, come to the last downwards extended square and write down the next integer after 14, i.e. 15 and then diagonally upwards filling in the squares with 16 and 17.

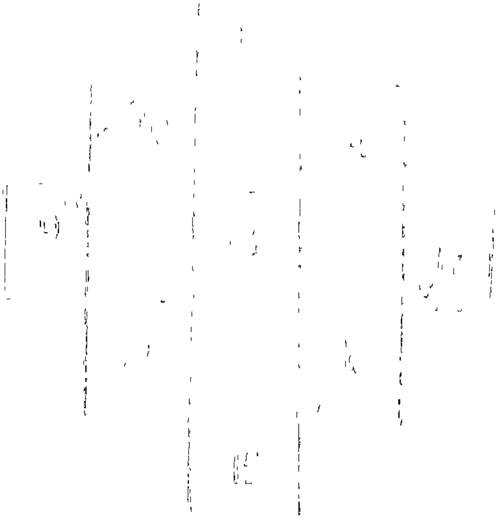


FIG. 4

Step IV

Now the integers in the extended squares have to be filled in the vacant spaces in our actual square. For this start counting from the first left hand extended square, i.e. 9, leave one square vacant and the centre square and put number 9 in the last vacant square in the line. Similarly, fill in the other squares starting from their position, leaving one vacant and the centre square and putting it in the next vacant square in the line respectively as also shown by the curved lines in Fig. 5. The magic square is now complete as in Fig. 1. You may add up the three numbers of any row, horizontally, vertically or diagonally, the total will always be the same.

FIG. 5

Readers may try the formation of another magic square of the sequential integers 1 to 9. The magic square is given below (the sum total of each line being 15).

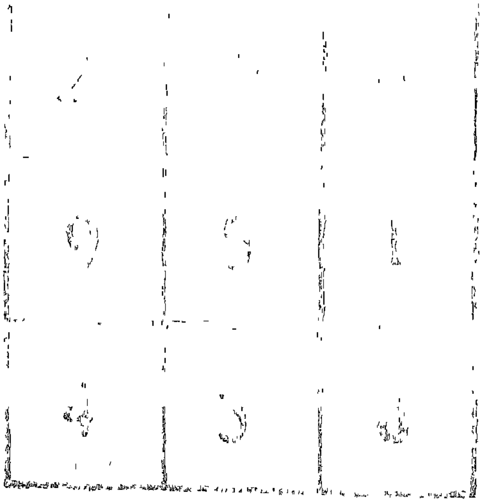


FIG. 6

Such drill work will encourage creative thinking in pupils and they will feel free and cheerful after getting proper solutions.

Mathematical Stories

The children like to read or listen to short stories. Some problems can be tactfully converted into such small stories which the students feel inclined to try out. Two such examples are given below .

1. You may suppose any amount Add equal amount of God and then add Rs. 10 of mine Distribute half the amount to any poor fellow and return the amount of God. Then you will have Rs. 5 left with you, half of my amount irrespective of your supposed amount.
2. A says to B, "If you give me Rs. 10 then we will have equal amount', but B says, "If you give me Rs. 20 then my amount will be four times that of yours". Find the amount of both.

The students can easily remember the problems in the story form and try out these with their friends and relatives. They will try to learn more of these and thus curiosity for the subject will be aroused. Such supplement work will also make them more industrious.

Mathematical Laboratory

There must be a mathematical laboratory in a school where solid figures, concrete objects, models, diagrams, graphs, black-boards, iron-boards, etc., collected from the environmental resources, can be kept for use. Geometrical instruments, metre-rods, weights and pans are the essential instruments to find a place in such a laboratory Any improvised apparatus such as 'geo-board' and 'calendar for centuries' can make the room more interesting.

The students can handle the instruments to measure the dimensions, angles, weights, etc. of the objects. Practical work has more psychological significance This has a permanent impression and helps the students to correlate their experiences while learning. Some experiments will be of practical use in daily life.

Formulas, Rules and Short-cuts

Some rules are better devices to make the calculation easier and quicker. With the use of certain rules the shopkeepers prepare their bills in no time. Some of these rules may be as follows :

Checking of Divisibility by Any Digit

(a) 2, 3, 4, 5, 8, 9, 10, 11...If you want to check whether a number is divisible by 2, 4, 8, 16 or not then if last digit, last two digits, last three digits and last four digits of a particular number are divisible by 2, 4, 8 and 16, respectively, the whole number will be divisible by the diviser. If the sum total of all the digits of the number is divisible by 3 or 9 then the whole number will be divisible by 3 or 9.

If the difference of the sum total of odd and even digits of a number is zero or divisible by 11 then the number will be divisible by 11.

Any number ending with zero is divisible by 10

(b) 5^2, 25^2, 35^2, 45^2 can be easily remembered. Suppose we want 35^2, then multiply 3 (the digit or the digits other than 5) by the next digit, i.e. 4 and then write down 25 to the right side of the product. It will be like this—$3 \times 4 = 12$, and after writing 25 towards the right side of the product it becomes 1225.

(c) Similarly 1^2, 11^2, 111^2, 1111^2, have symmetrical answer. Let us take 1111^2. There are four digits in it. Then write 1, 2, 3, ...up to 4 and then in descending order the answer will thus be 1234321.

In the same way the rules to find out the values of 9^2,99^2, 999^2, 94^4 and other general rules can be explained to the students and tried out in the class so that they can easily remember these.

Correlation with Life

Mathematics should not be based on imaginative and unsocial problems but actual problems containing numbers should be given to the children to solve. Problems of daily life based on numbers should be enquired from the students, classified according to the methods and solved. In this way students will know analogy of problems before analysing and solving and they will try to develop the habit of applying their knowledge to unknown situations of daily life. They will be more anxious to find many more related problems at home.

Mathematical News-board

Mathematical News-board is one of the essential features of the interesting activities. Mathematical news, graphs, showing population and food production, etc., comparison of the absentees to the strength of the class, results of home test, small mathematical quiz, etc. may find a place on this board. The teacher may talk about this news-board to the students so that they feel interested and make it a habit to see it daily. It will help in inculcating mathematical attitude in them. The board may show some selected problems of mathematics. This will increase deep thinking and creativeness in the students. Notes, telling about the performance of the students will inculcate enthusiasm and constructive competitive attitude among them.

Celebration of Mathematician Days

A few days in a year should be celebrated as mathematician days'. Such days might be connected with great mathematicians such as Pythagoras, Ramunujam, Lilavati, etc. The important work done by the mathematicians, their life histories, etc. may be explained. If possible, annual prizes named after such great mathematicians can be given to students for their extraordinary performance in mathematics

Mathematical Clubs

Every school should have a mathematical club and the enthusiastic students may be enrolled in this club. The club may arrange lectures, debates and other competitions of collection work and models, etc. The motive of holding such competitions will be to inculcate constructive, original and logical thinking in the students. Mathematical wonders like correlation among the numbers etc. and puzzles should be discussed in the meetings. Besides the training of leadership such clubs can arouse great excitement among the students.

These recreational activities are not the corner-stones of teaching mathematics but these can act only as catalytic agents. Systematic exposure of such activities with new aspirations will not only stimulate learning but will also increase the intellectual level of the children. On the one hand these activities will help the intelligent students to probe more deeply in the field of mathematics while on the other hand these will help weak students fight shyness and hesitation. Once the students get interested in the subject they will be able to do well and feel confident. The sense of achievement will inspire them to devote more attention to it and learn it without any difficulty. □

Moral Education in Schools

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Moral education helps in making the children worthy citizens by developing in them good behaviour, character, the spirit of social service, patriotism, etc. so that both the individual and the society could progress according to their potential. Moral education is relevant to all ages, but more to the young age, when desirable qualities of character can be inculcated in young children effectively. Moral education can neither be imposed on anybody nor it can be taught through books. The Radhakrishnan Commission says :

> Our attempt should be to suggest and persuade, not command or impose The best method is by personal example, daily life and work and books read from day-to-day
>
> It has been rightly said that 'truth is high, higher still is a 'truthful man' and 'example is better than precept'.

The Objective

The objective of moral education is to inculcate in children such qualities and social values that make themselves and the society healthy and happy. Social values include cleanliness, honesty, truthfulness, dutifulness, discipline, fearlessness, self-reliance, etc. which are relatively personal in nature, while self-sacrifice, mutual cooperation, feeling of social service, sympathy, secularism, socialism, nationalism, and respect for humanity are social values.

The Areas to be Covered

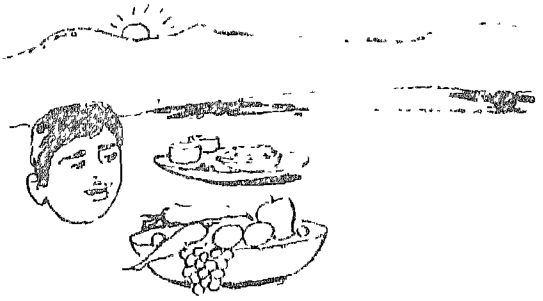
Initially only four areas, viz. individual, family, school and society may be taken up for developing the desirable behaviours in children. Personal character and behaviour is very important as it directs the social behaviour of an individual to a large extent. Therefore, both the aspects of an individual—personal and social—should be kept in view. The areas discussed below may be taken up for developing the desirable behaviours in children :

(*i*) *Individual :* There is a well-known saying that 'a healthy body and healthy mind go together'. Therefore, the students should be advised to pay full attention to their health. They should take regular exercise and a balanced diet. Also, they should avoid the use of intoxicants and live a simple and ideal life. Children should write their diary daily at night and analyse the good and bad points in their behaviour during the whole day.

(*ii*) *Family :* The family is the first social circle for a child. Respect towards elders and affection for youngsters help in developing good relations among the members of a family. Children should cooperate in the activities of the family and give respect to the guests. The elders in the family should behave with the children in such a way that the children may feel encouraged to discuss their problems freely and frankly with their elders.

(*iii*) *Schools :* The school is a social circle which is bigger than the family. Here the character of children is built. Therefore, the teachers play an important role in imparting moral education to the children. Teachers' affection for children and their sincerity to work develop devotion and respect in children for them which help the educational programme to a great extent. Students are more influenced by the behaviour of their teachers than any other person.

The students in a school should be taught to obey the rules, respect the teachers and help their juniors. They should develop the habit of keeping the school clean and decorating it with interesting and informative charts. They should also participate in the activities of the school.



(*iv*) *Society :* Children should be helped to develop the desirable behaviours towards society also. They should be motivated to help their neighbours. They should also be taught to be courteous to all, particularly girls, ladies, old men and the persons belonging to castes, communities and religion other than their own. Children should pay respect to all religions They should value the public property and protect it.

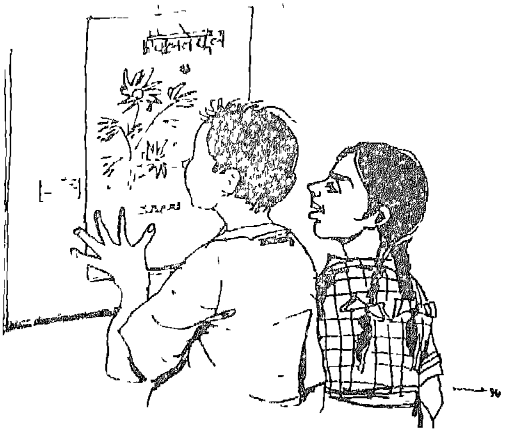
Creating a Favourable Atmosphere

We should keep it in mind that Moral education is not one-sided. There are certain duties of the agencies - family, schools and society also towards children. It is essential to create a favourable atmoshphere in the society. The children cannot be saved from the influence of permissiveness, violence, drinking, etc. unless the mass media like movies and TV do not stop encouraging the inclusion of such sights in their display Similarly, until and unless the leaders, the affluent people, writers and bureaucrats do not behave morally, it is impossible to give moral education to children. The behaviour of these people influences the society very much. Therefore, moral education can be imparted only in relation to the society

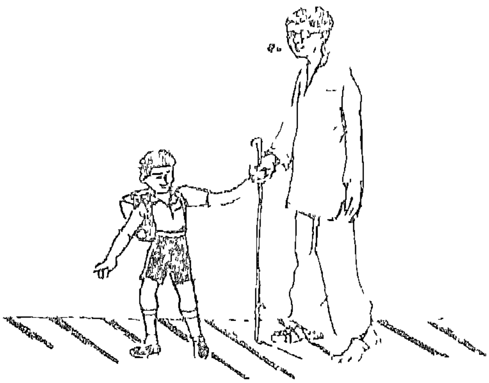
Moral Education Programme

Usually, it is observed that the responsibility of moral education is given to one teacher and one or two periods are allotted to it. This method has proved futile. It is essential to inject moral education directly or indirectly in the total programme of education. Some specific programmes may be taken up for moral education. But efforts should be made to develop moral values in children while teaching different subjects. For example, while teaching science and mathematics the skill of analysing, and the qualities of rationality, truthfulness and honesty with respect to different contexts may be developed in children. The qualities like humanity, honesty, sympathy, etiquette, etc. can be developed in children through language and literature and those like patriotism, nationalism, civic sense, social justice, etc. may be achieved through the teaching of history and civics. The feeling of economic equality, honesty, dignity of labour may be developed through the teaching of economics. The following two tasks are very important for implementing the programme of moral education in schools :

1. To create an atmosphere suited to moral education in the school.
2. To provide suitable learning experiences to students for moral education.



Again, there are two aspects of the environment, viz. human and physical. Regarding the human aspect, it is essential that the principal, teachers and students behave politely, affectionately and respectfully with each other. The personality, dress and the behaviour of the teachers and the prinicipal have great influence on the moral development of children. It is necessary that the workers in a school, from the senior-most to the junior-most, should behave with each other with respect and gentleness without any discrimination of caste, religion and status. Regarding the physical aspect of the environment, the school building, the classrooms and the bulletin-board should be decorated with the pictures of great persons, poets, artists and scientists and other educational charts. Besides, the playground and the garden in the school, if any, should also be kept neat and clean and systematic.



The second task is concerned with providing the children with learning experiences. Moral education may be imparted to children by providing them learning experiences directly. The school prayer, the co-curricular and extra-curricular activities, including the birthdays of great persons, national festivals, work-experience, sports-days and social service programmes may help in inculcating in children the feelings of nationalism, democratic attitude, cooperation, honesty, discipline and social responsibility.

Evaluation in Moral Education

Moral education is concerned especially with the students' feeling, attitude and behaviour. The evaluation of emotive and the behavioural aspects of children is comparatively more difficult than that of the cognitive aspect, and also it cannot be that much objective. Even then, it is natural that the organizers of a programme desire to evaluate the results of their efforts and the achievement of the students with respect to the objectives set forth and make the relevant changes in the programme and improve it. The two approaches of evaluation are self-evaluation and evaluation by others Since the emotive and the behavioural aspects of students develop and improve on the basis of self-efforts, the approach of self-analysis and self-evaluation are more suitable to moral education. For self-analysis, meditation is the most suitable method. For self-evaluation and self-analysis a check-list of behaviours and qualities may be developed for the children. In order to evaluate the behaviour of children artificial situations may be created in the school and outside the school or the children may be kept in the real situation at an appropriate place and time Artificial situations can be placed in the form of a question paper also. The real situation may exist in the family, the neighbourhood, the school, the hospital and the roads and at some other places also. In order to evaluate the emotive and the behavioural aspects technically and congnitively 'rating scales' may also be prepared. The observation method may be used in viva-voce, interview, conversation, etc.

It is important to note that in order to implement the moral education, it is necessary to develop the cooperation among the students, the teachers and the members of the family and the society. Without their cooperation moral education is impossible. ☐

Teaching of Words through Cards

IN THE PRIMARY CLASSES usually there are lessons for teaching the use of polite words like 'please' and 'thank you' and also titles like Mr., Mrs., or Miss. The students also learn about the people who work for us such as a blacksmith, a cobbler, a mason, or a washerman. As children come across these people daily they like to know about them, and when taught through play-way a methods they learn faster and better. This game of cards has been devised keeping this in view.

Material Required

The material required for this game is a set of 32 playing cards which can be divided into eight suits, each suit dealing with one trade. Each suit contains four cards. These cards carry the names of the tradesmen ont he top left corner such as Mr. Carpenter, Mrs. Carpenter, Master Carpenter and Miss Carpenter or Cobbler or Tailor according to the trades. Below that there are pictures depicting specific actions pertaining to the particular trade and the person mentioned. The other side of the card can have some attractive design as in the ordinary playing cards. Thus eight trades of this type can complete the deck for the game.

The Game

The cards are shuffled and distributed to the four players, four cards or eight cards at a time, so that each player gets eight cards. The aim of the game is to make complete suits of each trade. The one who makes two suits first wins the game. The game could be continued till two more have completed their suits to decide first, second, third and last. In that case a fixed number of points could be given to different positions and the one who reaches a pre-fixed number like 10, 25 or 100 could be declared the winner of the rubber.

Let us say A, B, C and D are playing. The turns go in the clockwise direction and players are placed in that order Now A begins by asking B for a card that he wants to complete a suit. But he must ask "*Please, Mr. Carpenter*, can you come to me ?" Or *Mrs Cobbler*, will you *please* come to my house ?" Or "would you *kindly* help me, *Master Smith* ?" Or "would you be *kind enough* to give me some help, *Miss Tailor* ?" If B has that particular card he must give it to A. Then A must say, "*Thank you*" and give B a card that A does not need. If B does not have the card asked for, he must say, "*Sorry*, I cannot help you now" or "*Sorry*, I cannot come to your house today", or something like that. Moreover, he has a right to ask for a card from A as a sort of penalty for unnecessarily disturbing him. But he must also ask with *please* and must say *thank you* if he gets the card he wants. So, as in other card games, guessing the cards in the hand of others is important and helpful in winning this game too.

If one forgets to say *please* one is a defaulter and cannot get the card one wants even if the other has it If one does not say *thank you* after getting a card one has to return it. Moreover, in both cases, the other party can ask the defaulter for a card he wants. This penalty has to be paid even by the one who forgets to say *sorry*.

However, if B is asking for a card because of default by A, and A does not have the card, B will not get the card and that is all. A now has no right to ask B for a card. Otherwise the two of them will go on and on. It is now the turn of B to ask C for a card that he needs to complete a suit. The game continues like this till one wins or three have won, as said earlier.

It can happen that when it comes to the last round, as soon as a card is exchanged the last two players will complete their last suit. But one whose chance or turn it was to ask for the card will be taken as the third place winner and the other is the last. The winners will reveal their cards as a proof that they have completed their suits. Till that time everyone keeps one's cards hidden from the view of others.

Extension

The game is meant for four children at a time If there are more children it could be extended to eight children, each getting only four cards. Or the four cards of one particular trade could be removed at a time to accommodate seven or six or five children.

It is also possible to add four or eight cards relating to one or two new trades from another pack of cards to increase the number of participants. Generally speaking, two decks of 32 cards each will be sufficient to engage the whole class, some playing and the others watching.

Since the children have to use polite words and hear them all the time in the game, very soon these will become part of their active vocabulary. The penalty for not using these words will quickly habituate the students to use them.

It is the same with the titles Mr., Mrs., Master and Miss and they will soon start using these while talking to others. It can also develop in them a sense of dignity of labour and teach them how to respect the people who work for us instead of treating them with contempt. The colourful pictures on the cards depicting the work that different tradesmen have to do, will give the players an idea about the type of work done by the people of different trades.

The game can be used particularly in revision classes so that the students can recall without feeling bored. Also, teachers who have to substitute for absent teachers will find this to be of great help. It goes without saying that the game could be played at home too, with literate parents guiding their children.

The Cost

To engage commercial artists for drawing the pictures for the cards will be possible only for commercial organizations. If schools are to take up this project themselves, their own art departments can draw the necessary pictures. Then the main expense is that of making blocks for printing A rough estimate has shown that a minimum of Rs. 1,500 will be required for a set of 32 ordinary two-tone blocks. But in a game meant for children, colour is very important. And the expenses will go up according to the number of colours to be used and could go up to well above Rs 10,000 for the 32 blocks. But if a deck of cards is priced at Rs. 5 the cost could be recovered with just 2,000 decks of cards.

Further Adaptations

Many more sentences could be added while asking for cards, thanking for cards received and expressing inability to give the requested card. This can help in further increasing the vocabulary of the children. Points could be given by the teacher-in-charge or the parent for better and more varied and appropriate use of language, to deserving children and winners could be decided with the addition of these points too. Here the one in charge has to be very alert all the time as an arbiter and perhaps only one game is possible at a time in a class.

The cards could be prepared in any language, and with the appropriate titles, polite words and names of trades, the game could be played by children of any linguistic group.

It is also possible to go a step further and substitute the professions of a doctor, an engineer, a lawyer, a teacher, etc. in place of the trades given in these cards These can be used by the students of the higher classes Here, however, instead of Mr Doctor, Mrs. Doctor, etc. the cards could carry the titles of the doctor, the nurse, the compounder, the laboratory technician, the judge, the lawyer, etc. The suits need not be confined to four cards but could comprise six or eight cards. These will teach the children the various aspects of the work of these professions.

Yet another adaptation of this game can be with stories Famous stories like the Ramayana, the Mahabharata, Abhigyan Shakuntalam, Iliad, Odyssey, Paradise Lost, King Arthur or the Arabian Nights could be divided into, say 10-12 main episodes, and cards could be prepared with the pictures depicting them, along with numbers for the episodes in proper order. Children could play the game, asking for and receiving particular numbers of specific stories. Three or four cards in series of any one story could be considered a set and the game could be played just like the one described or as in rummy.

It is possible to use this card game even for history, geography, or even for science subjects. Biographies can also be teamed in an interesting manner through this game.

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The Stage and Music in Primary Schools

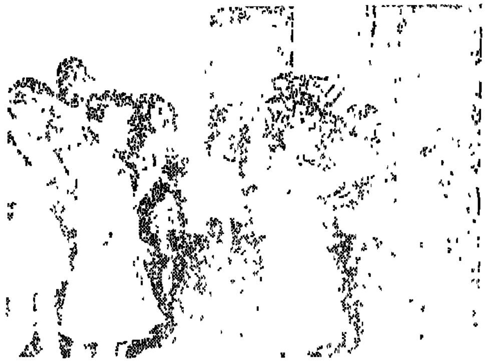
AUDIO-VISUAL AIDS have a great impact on the child's mind and make learning meaningful There are very few primary schools having provision for the stage and music, though it is the most effective medium for the primary level teaching. When a child starts understanding music he develops an interest in it.

The stage provides for the development of dialogue and acting. The celebration of national and annual days in schools also help to educate children by using the stage to express themselves freely through dance, drama and music. This leads to overall development of the mind and the body.

When young children perform historical plays on the stage, they indirectly learn more about that period, the costumes, the way of talking, food habits, etc which has a great impact on their subconscious minds, while they themselves are hardly aware of it. While making a speech the qualities of a good orator are being developed in them. When a child performs different roles in plays, he learns etiquette, the art of conversation and gets acquainted with different visual angles. In this process he also picks up proper pronunciation of words, and at the same time learns to speak frankly. Gradually the qualities of a good artist start developing in him.

Hearing too is an art. Hearing means getting to know the opinion and feelings of the orator. Keeping an end in mind and listening attentively is not idleness. On the other hand attentive listening helps in developing the concentration power in the pupils When the students are able to concentrate their minds they will listen attentively to the teacher and grasp whatever is taught to them. Thus while watching a play the students not only get absorbed in it, but also learn to concentrate. The selection of plays and artists helps in developing their learning faculties. Remembering the dialogues spontaneously manifests their power of memorizing.

Music is an important part of the stage and drama. Musical instruments and classical music are a good medium for developing perception. Today's school-going children take an active part in several musical programmes They sing and dance, and with the notes create original music. Creating his own music helps a child in developing his feelings. As music is international it enfolds different countries and promotes friendly relations between them. Thus proper presentation of music on



the stage can prove very useful for the child

Children watch musical programmes in school, presented by the music teacher or other children. The repetition of musical notes in the class increases their knowledge. They can all participate in group songs such as daily prayers and the National Anthem, which are a part of the day-to-day school programmes. Listening to music helps in perceiving the accent, harmony, modulation and emotional depth in its performance.

The creative moments in the manifestation of music also help in writing poetry and songs. By humming a line, the next can be composed in the same tone. For a person who can understand musical notes, music classes become really enjoyable. It is the duty of the music teacher to develop a love for music in his pupils by proper presentation. Music is not just for gaining fame. It is creation to enjoy. Very truely, our saints have called the joy of music 'the eternal joy'. Let the same be infused into every musical activity of the school by the music teacher and his students

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Teaching through Activities

GENERALLY, the activities performed in schools are the same, e.g. prayer meetings, Saturday meetings, etc But some schools have special programmes to encourage creative attitudes in children The school principal has a special role in organizing special activities. He must take keen interest and devote ample time in conducting all the activities He should also let his staff work according to their interest.

Choice of Activities

The activities to be organized in a school have to be carefully chosen. While choosing these activities, the following points may be kept in mind :

1. The activity should be according to the intellectual ability and interest of the students.
2. It should be performed by play-way methods so that the students get involved in it and don't feel the burden.
3. The students should be free to carry out their activities independently.
4. It should teach the children good habits.
5. It should be conducted

keeping in mind the individual needs of each pupil.

6. Properly trained teachers having an aptitude for the specific activity should conduct the activity.
7. For the performance of an activity facility of a suitable place is very essential, e.g. school lawns, an industrial place, a farm or a classroom, etc.

Objectives

Performance of such activities will arouse and develop creative and productive inclinations in children, develop a love for nature and thus help in developing their power of perception, introduce children to social behaviour and cultural programmes,

help children achieve emotional balance and learn to mix up in the society,

help prepare children's minds to express orally and in writing give the child a change for having healthy arguments and healthy ideas,

arouse curiosity and consciousness in the child, for the social boundaries,

provide children with opportunities for presentation through various media,

develop dignity of labour in them,

organize programmes which provide for proper utilization of the students' capacities and enthusiasm.

How to Conduct Activities?

— Activities should be conducted in such a manner, that each student gets an opportunity to involve himself in some useful programmes.

— These should be limited to the school level so that present human and physical resources are put to maximum use.

— Children who show extraordinary performance in a particular activity should be rewarded.

— The child should be taught the ways to do well in an activity, so that later on that activity can be taken up as a profession, e.g. writing, puppetry, art, etc.

— Facilities should be provided for the utilization of school lawns, playground, instruments, other materials, reading room, and library for pursuing various activities.

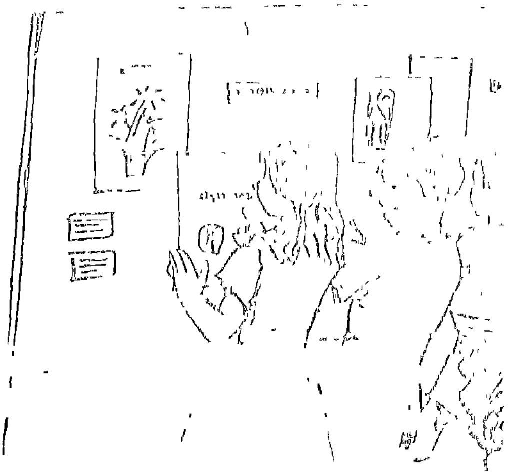
Some Suggested Activities

The child's emotional development takes place at a very fast pace in the beginning and whatever time and facilities are provided to him for creative expression at this time, are utilized by him for creative development. The school should, therefore, make efforts to organize such activities that stimulate creative expression. Many such activities can be tried out. Some suggested activities are discussed here.

Children's Play Centres

Children of the age-group 2½ to 6 years need a pleasant and healthy atmosphere for proper development. Children's play centres provide such opportunities for their physical, mental, emotional and social development. Here they learn to cooperate and develop sportsman-spirit. They get together and play all kinds of games, they sing and dance, walk, run, sit, stand, play or roll according to their will. This programme is being followed up in some schools in Rajasthan since 1970 and the state government is providing aids

The teacher is the best manager of children's play centre Sometimes while playing, the teacher puts problems to the children through which they gain experience in life Children's play centres are not a part of the school curriculum, so the strict discipline of the school need not be maintained here and the children should feel free and relaxed to get involved in any activity they feel interested in. Young children like to sing and play · *Inder raja pani de, bol meri machli kitna paani, mamma ke ghar jayenge, chuk chuk karti ayi rail*, etc. are some of the nursery rhymes children learn while playing. Hunting for things, *koda hai kamaal bhai*, I sent a letter to my mother, ring a ring of roses, hide and seek, skipping, etc. are some of the games through which children play and learn. They can also utilize their creative talents to make things from waste material such as rags, empty tins, old newspapers, magazines, empty bottles, etc.



Puppetry

It is an age-old art, mastered by the artists of Rajasthan. Folk tales, mythological stories, popular plays, etc. are presented through puppetry in a dialogue form and children as well as adults watch these shows with great interest Two types of puppets—glove puppets and string puppets—have been used in teaching. While the glove puppets have been found suitable for lower classes, the string puppets are more useful as teaching aids for higher classes For the glove puppets the thumb, the forefinger and the middle finger are mainly used. The gloves with the puppet faces are worn over these and the teacher presents various characters by the movements of these three fingers. Children watch the show with great interest and simultaneously learn through them. Small children have a strong sense of imitation and they learn very fast by imitating. This way they remember the sentences and sequence very fast.

Question Paper Box

A box was kept at some fixed place in the school and children were asked to write on a piece of paper the questions which they could not solve and put them in this box along with their name and class written on the same. Every Saturday the box was opened and the questions taken out. Answers to these questions were read out every Monday. For the first few weeks there were only a few questions but as children saw others questions being answered they too got interested and came out with their doubts. Children will put maximum questions in the subjects in which they are most interested. This may help the teacher to know the child's field of interest. The teacher may then get in touch with the parents and encourage the child to take the same subjects in higher classes.

My Collections

Children were asked to write in a diary 'My collections', whatever they liked. This helped in finding out the literary interests of each child. Depending on the diary and the interest of the students, different groups were formed for activities like poetry, story-telling, jokes, articles, biographies, art making albums, formation of ideal sentences, one-act plays, etc.

Wall Magazines

Arrangements were made through public cooperation to get periodicals like *Paraag*, *Nandan*, *Chandamama*, *Bal Bharti*, and other useful books for children, in the school reading room, so that children can benefit from self-reading. This helped them in becoming self-reliant. Regular features by the children were given a place in the monthly wall magazine. This developed a sense of enthusiasm, ambition and consciousness in the children and they wrote good pieces.

Excursions and Collection Display

Children were taken on excursions on a regular basis and were told to collect things which they liked, keeping in mind that their collections should not cause any harm. They were told that these were to be displayed later on at either their own classes or on their card-sheets. Children collected various things and arranged and exhibited them in various ways.

Several children made different shapes and figures with twigs and stones. Similarly, feathers of various birds like parrot, myana, peacock, pigeon, etc. were displayed. On an excursion to the riverside they collected river stones, shells, etc On some other days they collected butterflies, seeds, wild-fruits, weeds, etc. and displayed them. These activities created in them a love for nature and also developed in them the ability to collect and display in an orderly manner. They learnt about several new plants, and the uses of several things which they thought were useless.

Cultural Programmes

Cultural programmes are the

best medium to teach children about the Indian culture and heritage. Plays like *Satyawadi Harishchandra*, *Veer Abhimanyu*, tableaux presenting scenes of *Shri Krishna Leela*, *Ram Leela*, puppet shows on mythological scenes and forms, all enrich children's cultural background in addition to providing healthy entertainment.

There can be many more such activities which arouse creative thinking in children. Only the teachers have to devote ample time and devise various models and means to make it a success. This will then make the schools a great attraction for the students where they would like to come eagerly and thus make learning a creative experience.

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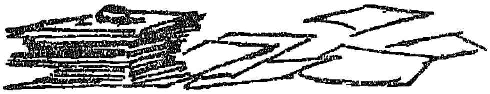

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The very little it costs to lift a life out of darkness

Is THERE ANYBODY reading this article who could not afford to give 2 U S dollars or 1 Sterling or 9 French Francs to save the sight of a child ? Because 9 Francs, £ 1 or $ 2 is all that is needed to protect a child from blinding malnutrition caused by vitamin A deficiency, reports Robert Mathias in *Unesco Features.*

In a single day—the day you read this article— 70 children go blind in Bangladesh alone; 25,000 in a year, a good year that is. For in a bad year, when there is famine, the number could be 100,000.

A programme to treat one of these children and at the same time educate their parents in proper nutritional feeding, costs not more than 12 U. S. dollars.

Another example : out of India's 9 million blind, 5.2 million are curable or could have their sight restored through a simple cataract operation costing 5 U. S. dollars.

In the Middle East, 7 million people have been blinded by trachoma, a disease which could be controlled through modern mass treatment programmes at a cost of less than 1 U.S. dollar a person.

Seventy to eighty per cent of the world's blindness is preventable or curable, according to World Health Organization estimates.

What shocks most about these figures is not the colossal size of the problem, but the meagerness of the resources needed—but not yet given—to save millions in the developing world from living a life in darkness. As William Brohier of Malaysia put it, "We've got our priorities completely wrong. The means are there, it's the will to solve the problem that is lacking."

Mr. Brohier who is representative for South-East Asia of the Royal Commonwealth Society for the Blind and former executive director of the St. Nicholas School for the Visually Handicapped in Penang, Malaysia, had come to Paris to attend a Unesco symposium on "What kind of world are we leaving to our children ?"

To prove his point, he compared the following expenditure : WHO's total budget for eradicating smallpox over a 10-year period amounted to 83 million U. S. dollars less than what it costs to buy a single strategic bomber. Every year the world spends 400 billion U.S. dollars on armaments.

"We are trying to safeguard ourselves against the enemy outside, when the real enemy is within," Mr. Broheir said, "At this very moment thousands of children in the developing countries are losing their sight and their hearing or having irreparable damage done to their brains through protein deficiency. Immediate action is needed to save these children. Action by governments and by organizations, but also action and personal contributions by and from individuals."

This is the message Mr. Brohier wants to get across to the industrialized world : everyone, every one of us, has the ability to do something positive—to help a fellow human being, another child, to save his life perhaps, to restore his sight or prevent him from being crippled for the rest of his days by mental and physical handicaps.

Teaching Self-reliance

The St. Nicholas School for the Blind in Penang, with which Mr. Brohier remains closely associated, is one of the model schools in the developing world where sightless or partly sightless children, generally from poor backgrounds, are given treatment, education and training to enable them to lead self-reliant lives as near normal as possible.

Sports—including running, jumping, swimming and even cycling—play an important part in their activities, for through them the blind child acquires mobility and loses his fear of the unknown. A St. Nicholas student, Anuar Osman, won the Guinness Stout Effort Award two years ago being one of the first ten blind climbers (and the youngest among them) to reach the summit of South East Asia's highest mountain, Mount Kinabalu, in Saban. Another award went to a former 'Nicolite', Joseph Soon, who after graduating with a degree in commerce from Melbourne University in Australia, has become Malaysia's first blind accountant.

Individuals or groups wishing to help the blind students at St. Nicholas can do so through Unesco's Co-Action Programme. Contributions however small, can be used to purchase UNUM cheques, a kind of internal money order devised by Unesco to facilitate the transfer of funds from one country to another. A 5 U. S. dollars cheque will buy 300 sheets of braille paper, 75 U.S. dollars a cassette recorder, 125 U.S. dollars a braille typewriter and 600 U. S. dollars a thermoform (braille duplicating machine), while 120 Mal. dollars (approx. 60 U. S. dollars) will cover the cost of a student's braille school books, equipment and clothing for a year, and 1200 Mal. dollars his or her total maintenance. Contributions or requests for further information should be sent to Unesco's Co-Action Programme (mentioning Project No. 10—St. Nicholas School for the Blind), Unesco, Place de Fontenoy 75700, Paris. ☐

Workshop on productivity education

INCULCATING IN CHILDREN the urge to work, right from the primary school stage, was reiterated at a three-day workshop on productivity education. The workshop jointly organized by the National Council of Educational Research and Training (NCERT) and the National Productivity Council (NPC) in the first week of February 1980 tried to analyse how productivity education can be introduced at the school stage in order to make students aware of its importance in national development.

Development of a positive attitude towards work and encouragement of innovative ideas, at an early stage, was recommended so that children are able to grasp the spirit of productivity.

The participants suggested the introduction of productivity education through vocationalized education, environmental studies and socially useful productive activities, and identified four areas in which the concept can be taught, viz. agriculture, industry, offices and places of work and homes.

The workshop was of the view that the syllabus on productivity education should necessarily be given a practical bias The syllabus should be illustrative in nature and a variety of activities to be taken up by students and teachers ought to be identified clearly. It was recommended that the subject should be dealt not only from the economic angle but should be closely linked with home life, school life and the entire environment encompassing the lives of school children.

The habits of conservation, preservation, thrift and maintenance should be instilled in children by the parents themselves, the workshop urged.

Discussing the importance of productivity education in the agricultural sphere the workshop voted for its inclusion at the secondary school stage. Student participation in various agricultural activities like harvest could motivate them to work for increasing the rate of agricultural production in the country. □

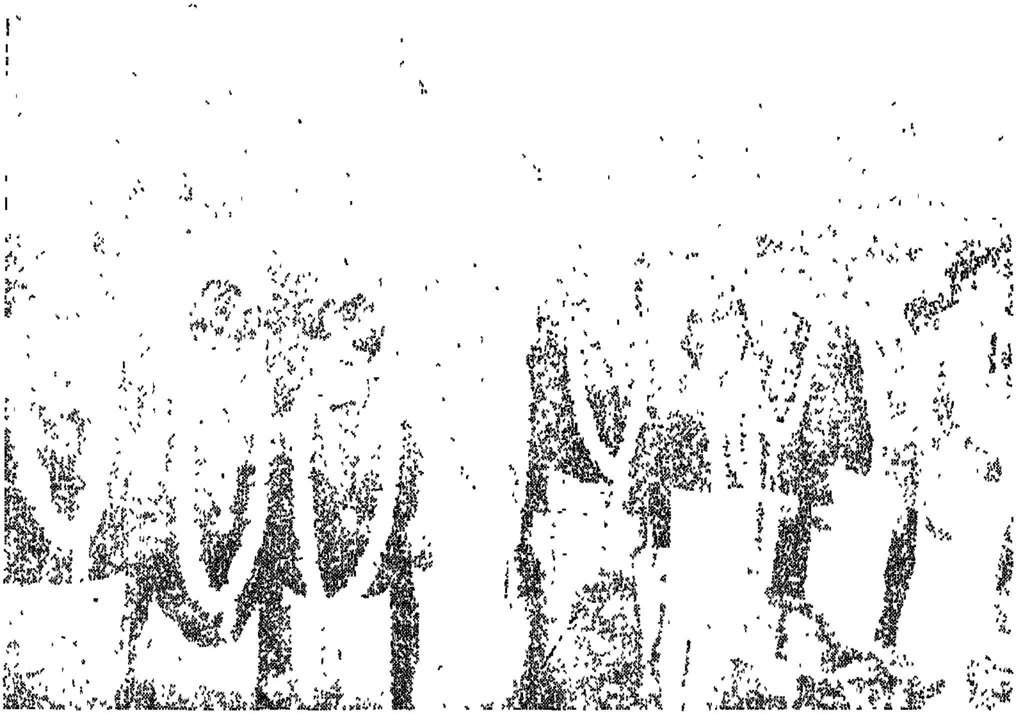
SCHOOL ENTRY BY LOTS

Admission to school through draw of lots ?

Yes, this is what the Chandigarh administration has done this year for admission to its English medium schools.

The schools gave up the old practice of selecting kids for nursery classes through oral or written tests The explanation was to avoid public criticism in view of the mass rush for admission to these schools

The Hindustan Times, 7 April 1980



THE PRIME MINISTER, SMT. INDIRA GANDHI, WITH THE BRAVE CHILDREN

Awards for the brave children

To SHOW COURAGE in the face of danger and avert a calamity is not everybody's cup of tea. Only a few really brave can show such might at the need of the hour. This year too, fourteen such children were given awards for outstanding deeds. Who were these strong children and how they faced danger, let's see.

— Two of the 14 children could not make it to the function.

— Twelve-year old Chaman Lal from Hamirpur (H.P.) rescued two children from a wolf which had attacked them, was given the Sanjay Chopra Award instituted last year in the memory of the 16-year-old son of a naval officer who in 1978, along with his sister, was murdered by two Bombay criminals.

-- Twelve-year old Miss Sayal Labhubhai Bhoya, an Adivasi girl from Gujarat, in 1978, pried open the mouth of 10 ft. long python that had caught her friend's leg. She was given the Geeta Chopra Award

— Miss Oinam Madhubala Devi (12) got the award for rescuing a baby from drowning in a pond although she did not know swimming.

- Miss G. Sandhya (8) from Uttar Pradesh showed great presence of mind and brave disposition by jumping into a canal to save her three-year-old brother
- Seven-year-old Pradip Choudhury from Gauhati saved a two-year-old Muslim boy who had fallen into the flooded Bharlu river.
- Seven-year-old Yudhvir Singh from Hissar killed a 4 ft. long poisonous snake with a brick and saved the lives of some children playing in a park.
- Dharmesh Kumar Rawat (13) from Damoh in Madhya Pradesh got the award for saving a 12-year-old girl who had fallen into a well.
- Miss Sukko Hai (8) from Mandla in Madhya Pradesh saved two young girls from drowning.
- Shartughan Lal Sahu (13) from Madhya Pradesh got the award for saving a four-year-old girl from being run over by a train. Shatrughan, who was going with a 10-member village party also saved a baby lying on the track. The other six members of the party were killed.
- The lone awardee from the Capital was Miss Radil Singh (14). Radil showed remarkable presence of mind and misled a group of criminals who had attacked her grandparents and raided the house. The criminals attacked her and even tried to strangle her. She phoned the police after the criminals left and removed her grandparents to hospital
- Benoy Scaria from Kerala rescued a drowning man although he did not know swimming.
- Elangbam B. Singh from Manipur, the 10-year-old lad, saved a two-year-old child who had fallen into a pond.
- Bakul Mahanta from Nowgong, Assam and Bhageshwar Pagak from Tezpur, Assam, rescued people from drowning.

The Indian Council for Child Welfare, which gives the awards has till now honoured 190 children for outstanding deeds of bravery. The awards include toys, a certificate and a silver medal. □

Children working in 'inhuman conditions'

According to a report of the Geneva-based International Labour Organisation (ILO), children employed in match factories and private mines in India are among those working under the "most inhuman conditions" in the world

The report says about 28,000 children, some of them only five years old are working in match factories in India for 16 hours a day from three in the morning.

In Meghalaya, children work in mines of private companies, in trenches 90 cm wide and one metre high, where adults could only crawl. "As soon as their size is no longer profitable, they are thrown on to the street," the report says.

The report was recently presented to the United Nations Sub-Commission for Fight against Discriminatory Measures and the Protection of Minorities, a body of the Human Rights Commission.

The report says nearly a hundred million children in the world were forced to work—52 million of them in agriculture, and 41 million do as best they can as independent workers in order to survive. In India 16.5 million of them work "often in inhuman conditions."

In Columbia, three million children work mainly in coal mines, 280 metres below the surface, in galleries without ventilation or props, in candle light, for eight hours a day.

In Morocco and Egypt little girls between seven and 12 work in industries manufacturing carpets "without pay" on the pretext that they are apprentices. "When they reach the age of 12 they are usually replaced by younger girls because, in principle, they should then receive a wage ."

The report says 5,000 small factories in Bangkok, Thailand, employ children as their main labour force.

In Taiwan, children between 12 and 15 years of age work for 12 to 14 hours a day in toy, textile and electronics industries. ☐

Role of dolls and toys in mental development

DOLLS AND TOYS play a very important role in moulding the tender minds of the children in the right way. Apart from testing the aptitude of the children toys also educate the children in many ways, says K. V. Srinivasan in the January 1980 issue of the *Toy World.*

With the help of a bathing doll the importance of cleanliness can be taught to the children. Dolls can also improve the saving habits in children, e.g. an oscillating doll with the write-up : 'If you want to knock me down save up to my neck', makes the child inquisitive to find out how the doll is knocked down and the child will try to save more in order to fill the doll up to the neck and at the same time the child will also be eager to know the principle behind the oscillating doll.

The modern mecano sets and other assembly sets also reveal aptitude of the children. One child may be interested in the colour combination and try to make a sketch of it thereby exhibiting its artistic mind, another may be interested in improving upon it and so on and so forth.

Practical aspects of education can also be well imparted to the children through these mecano and other building sets, e.g. an aeroplane can be assembled according to the instructions given and through this the child will not only know how to assemble or construct an aeroplane but also learn the importance of the various parts of the aeroplane.

In the light of above, the government should not classify dolls and toys as luxury items. It is time for the various governments to consider exemption of sales tax and excise duty for these dolls and toys as they do for educative cine films. This will not only make the toys available at a cheaper price but will also make the industry prosper and serve the children with more innovative and educative dolls and toys so that at least a decade later the country will have intelligent brains coupled with practical training and there will not be any brain drain.

Mr. Srinivasan also relegated the importance of toys in the child's mental development to its psychological needs. Innocent childhood is the best period of one's life. Children grow into adults with the mannerisms and habits imparted to them by their parents

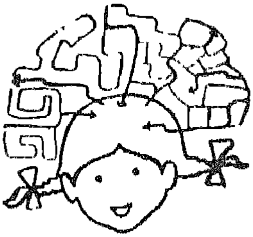
In many cases the parents decide the future of the children and they do not care about the aptitude or aspirations of the child. For example, a father compels his son to become a doctor for the simple reason that somebody in their family had suffered because of want of medical attention at the appropriate time, fully knowing that the son is interested in a different career. Such treatment makes the life of the child miserable and ultimately hampers his future.

Parents must realize the importance of nurturing the physical and psychological needs of children and do their best to mould them in the path they like It may also be contended that the present-day life pattern where both father and mother go to work, leaving the child in the care of others results in denying the child proper care and attention in the most tender age. Therefore, in order to prevent the child from becoming dull-headed due to lack of parental care, steps must be taken to study their aptitudes and sharpen their intellect, common sense and power of grasping through some alternative means which may be in the form of toys.

It is also suggested that like a library for books there should be a dolls and toys library started in various places with the help of the government. Children can be allowed to operate on a nominal fee with sufficient safeguards for proper maintenance of these. There can also be an observer team sponsored by a leading toy industry to study the aptitude of the children and suggest ideas for improvements. □

Use of 'soroban' in mathematics

A TRAINING PROGRAMME for the primary school teachers was held at the Regional College of Education, Bhopal from 27 to 30 November 1970, reports *Newsletter*, RCE, Bhopal. The programme demonstrated the use of 'soroban' for calculations in mathematics. Twenty-seven primary teachers from local schools and five teachers from the Education Society of Bhilai Steel Plant participated in this programme. Two experts from Japan conducted this programme and demonstrated the use of 'soroban' for performing elementary calculations of numbers such as addition, subtraction, multiplication, division and extracting the square root and involved the group in carrying out the operations. The Japanese experts hoped that both the students and teachers of India could do much better in mathematics if they use 'soroban' right from the early stage of their education. ☐



JOURNAL OF INDIAN EDUCATION

The *Journal of Indian Education* is a bi-monthly periodical published by the National Council of Educational Research and Training, New Delhi.

The purpose is to provide a forum for teachers, teacher-educators, educational administrators and research workers, to encourage original and critical thinking in education through the discussion of current educational views, and to promote the development and improvement of educational practice. The contents include articles by distinguished educationists, challenging discussions, critical analyses of educational problems, book reviews and other features.

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तमसो मा ज्योतिर्गमय

(Lead us from darkness to light)

The distance between light and darkness
can be likened to the distance
between literacy and illiteracy.
In complete darkness even a small ray of light
appears like a light-house
Just as a beam of rays
lights our surroundings,
a little contact with education
can enlighten hundreds and thousands of souls.
Illiteracy, ignorance and superstitions
vanish with the contact of knowledge
which is education.

THE PRIMARY TEACHER

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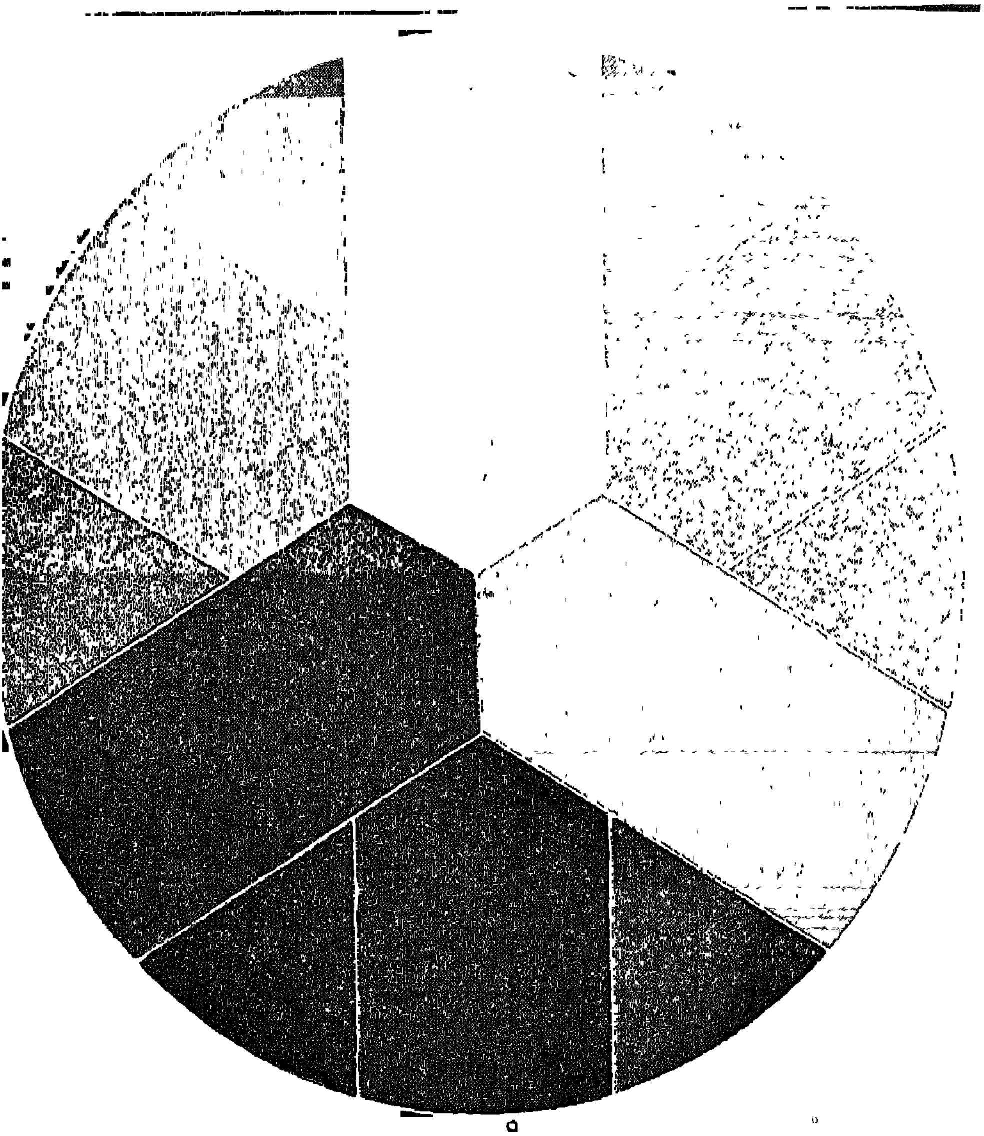

COLOUR CIRCLE

☐ *The Primary Teacher* is a quarterly brought out by the National Council of Educational Research and Training, New Delhi

The journal intends to give to the practising teachers and concerned administrators authentic information about the educational policies being decided on and pursued at the central level. It aims at giving meaningful and relevant material for direct use in the classroom It would carry announcements of programmes, courses of study, etc., offered at various centres in India from time to time. It also provides a forum for the discussion of contemporary issues in the field of education.

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1. The educational policies concerning primary education
2. Questions and answers
3. States round-up
4. Illustrated material for classroom use

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Jean Piaget Passes Away

JEAN PIAGET, often called the father of modern child psychology, died in Geneva on Tuesday, 16 September 1980. He was 84 He was born in Neuchatel, Switzerland on 9 August 1896.

Jean Piaget, the second greatest name in the field of psychology after Sigmund Freud, had a distinguished career. His first paper on 'albino sparrow' was published when he was only 10 years of age. By 15 his publications on mollusks made him known to specialists in the world He earned his Ph.D. in 1918 He explored causes of children's failure in tests of reasoning

Piaget's description of the development of cognitive abilities is held in high esteem The object of Piaget's theory is to explain not the content of knowledge but how it is organized. His principal concern of life had been to investigate how knowledge-gathering activities are structured.

Though his theories earned him international acclaim, Piaget remained a modest man. He taught four hours a week, supervised Ph. D work and was Director, both of the Institute for Psychology and the International Centre for Genetic Epistemology. He was also the editor of *Archives de Psychologie*. □

Editorial

Values in Education

EDUCATIONAL SYSTEM like any other sub-system reflects the values of the entire social spectrum There is nothing unusual if teachers are found lacking in the moral fibre also commonly absent among the business administrators, bureaucrats and others It is a matter of regret that such a thing should exist at all but if it does and indeed *it does*, teachers alone should not be singled out for shouldering the responsibility of improving the lot of the nation. As an argument perhaps one could agree with this statement but considering the value society attaches to education this would hardly be tenable. We all complain that bad days have taken over and the ordinary citizen is no longer he once was. This means that the canker of lack of morality is eating into the vitals of the nation No single segment of society could extricate itself from the responsibility of coming to its rescue. The teacher must, therefore, not lag behind in owning up his share of the work.

The question that comes up for consideration is : What can a poor teacher do when everybody else has thrown morality to the winds ? Perhaps the real question ought to be Where to start the healing of the wounds of society ?

Society in all its wisdom has decided that education alone could, besides preserving culture, uplift its moral fibre. Education as a sub-system has been identified for doing the job. It is that section of society which must perform a curative function. Education has been given the opportunity to cure the ills that have been diagnosed already. One way to start with is to invite people to debate on the values they wish to be transmitted and the other is to find ways of permeating the entire society including education with values like social justice, equality, dedication to the work one performs, honesty and the like. These values, let us remember, cannot be transmitted by talking about them. Teachers must practise a few to set up credible models or else these would fall by the wayside in the long run of life by sheer disuse and disfunctionality

[illegible]

MARGARET VARMA

Assistant Professoi
Douglass College, Rutgers University

CHILDREN communicate from the moment they are born The years from infancy to about six are considered crucial for language development. Listening, speaking, writing and reading are all important parts of language development They are all parts of a growth continuum and interactive. Children experience these simultaneously, for language is integral to children's experiences.

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Young children need to have innumerable opportunities in listening to language and for expressing themselves. Young children will initiate their own listening experiences provided there is something interesting to listen to—interesting conversation, concerned and care-filled answers to their questions, an interesting story being told or enjoyable music being played

Almost all activities of young children, either at home or at school, automatically, spontaneously and very naturally result in the use of language. Children learn from their surroundings by talking about the activities they are involved or engaged in, while they are busy at them. They talk enthusiastically about all their experiences, sensory and others. Learning by doing, an involvement with materials, is accompanied or followed by children talking with one another, talking with the adult present or even talking in monologues. In general, children are bursting with ideas which have to be expressed to themselves or to others.

The younger the child, the less inhibited he or she is, exploring in every direction, and looking at the environment with an unconditional

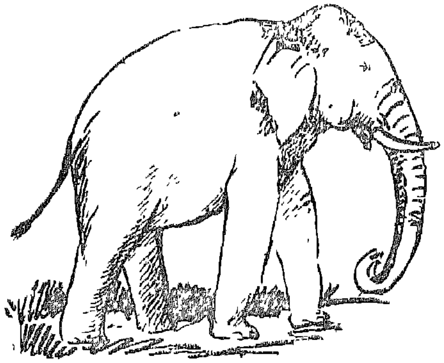
For both girls and boys literature serves special needs, unlocking a world of thought and emotion which cannot be reached in any other way.

freshness. Children cannot be kept away from talking, expressing, communicating and learning. But we adults need to allow learning to occur, by being catalyzers—elements that make self-expression possible. We adults need to create an atmosphere in which children will feel comfortable and safe to ask questions, express ideas and come up with opinions. We adults also need to free children to dig deep into their subconscious selves and bring to the surface their ideas, thoughts, feelings and dreams. The inner worlds of children are supposed to have a very significant influence on their behaviour. We adults need to create an atmosphere in which children feel their endless questions, matter-of-fact ones as well as very unusual ones, will be treated with respect, and valued.

It is said, "Questions are the engines of intellect, the cerebral machines which convert energy to motion and curiosity to controlled enquiry. There can be no thinking without questioning, no purposeful study of the past, nor any serious planning for the future." (David Hackett Fisher) Therefore, we must listen to children's talk, for this is their most human quality. Talk is central to learning—it is essential—and yet there are still primary school classrooms where no one is allowed to talk, except to answer the teacher's questions

Children need experiences that would trigger or generate productive thinking. They need opportunities to express themselves freely. They need opportunities to explore – opportunities which would result in the satisfaction of their curiosity and a personal joy in their exploration and discovery. Therefore, we should not be concerned only with the 'now', but plan that children also get the 'forever'.

I strongly feel that the years of early childhood are the years to nurture children's emotions : a sense of the beautiful, the excitement of the new and the unknown, a feeling of sympathy, pity, admiration and love For once the emotions are aroused, then there is a natural desire to know more about the objects or the situations that brought about these feelings. It is more important, therefore, to pave the way for children *to want to know* than to present them with all kinds of factual material they are not ready to assimilate. This need is based on the philosophy that the affective domain, the realm of thoughts, feelings and emotions, is as important a part of the curriculum as learning to read—facilitating at some other point in time, the cognitive. It is through an exposure to a variety of experiences that children accumulate discriminating powers which are precursors to using symbols of language.



Regarding writing experiences in the early years, there is enough evidence supporting the view that young children find this activity difficult to cope with, for even its minimal development requires a high level of abstraction. Research has shown that the biggest difficulty children have in the writing is its abstract quality. Writing is like talking to an imaginary person or to no one in particular, for there is no immediate feedback. Writing also requires that children understand the sound structure of words and the word sequences. All these are deliberately analytic activities which young children are not ready or able to do.

As regards reading all children may not have been exposed to specific reading experiences during their early years, but they are certainly exposed to language from the time they are born It is believed that all children as they grow and develop need to have two fundamental insights before they can actually learn to read : First, that written language is meaningful, and secondly, that written language is different. Reading has to be a meaningful act and must start where the child is. Studies have shown that children can read material that is rather difficult for them, if their interest is aroused, and if they can comprehend what they are reading by finding its meaning. For example, the word 'elephant' is harder to read in 'the elephant has a long trunk' than in the sentence 'the animal with a long trunk is an elephant.'

Two important points to remember are that children do not learn under

Reading is experiencing—not just getting the facts from the material read, but living the experiences, being transported through reading to other climes and times.

pressure, and that most beginning reading materials for children are uninteresting, monotonous and not couched with language that is humorous, nonsensical or in verse which children enjoy. Generally, beginning reading materials are meaningless in content, and rather ambiguous in structure, and, therefore, not at all appealing to young children. There is a true story about a kindergarten child who comes home from his first day at school announcing that he does not want to go back. The reason he gives for this is : "I can't read and I can't write and they won't let me talk so there's nothing to do." If children are given ample opportunities to talk, to communicate their views, feelings, emotions and ideas, reading will swiftly follow. Reading is considered the result of a continuous process which starts when the child is very, very young

Reading is also called foundation learning. It can be a way of developing thoughts and ideas. We are well aware that all children have thoughts, ideas and knowledge, before they begin to read. But reading helps to put order in the 'chaos' around them. Reading is experiencing—not just getting the facts from the material read, but *living* the experiences, being transported through reading to other climes and times

[illegible]

Literature experiences can make a significant contribution to personality development and the enrichment of children's lives. Through literature children can come to sense their roles in the life of the family, the school, the community, the nation and the world. It is possible for them to grow in understanding the behaviour of people in general and the many relationships people have with their social and physical environments. Through meaningful experiences in literature children begin to become acquainted with the principles underlying democratic living and Nature's way about life.

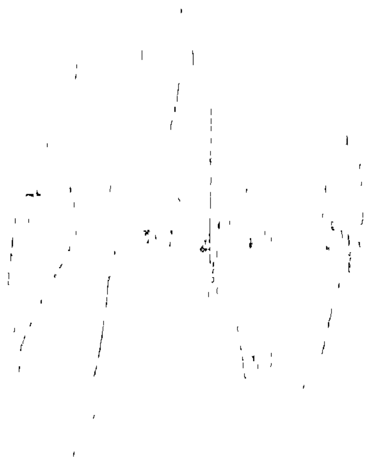
It is said that literature is not merely emotional—it is intensely human. Through stories children learn about love, hate, happiness, sadness, adoption and divorce. They also learn about the affection and concern of their family and friends, which furthers their own emotional growth. The feelings of warmth and acceptance can be more readily sensed by young children when an adult sits with them close and reads or tells a story. Such feelings are beautifully expressed in the following lines :

You may have tangible wealth untold
Coffers of silver, treasures of gold
Richer than I you can never be
I had a mother who read to me

Listening to books read aloud should be made an important part of children's experiences, definitely at school, and if possible at home too.

For both girls and boys literature serves special needs, unlocking a world of thought and emotion which cannot be reached in any other way. Reading and getting involved with written material is a close and intimate communication. Young children immersed in books are living with the people in them. They sit with them so to speak. They may be people like their own family and friends, or they may be like total strangers—people they have not met so far and are not likely to meet in the future. However, to their great joy, they can revisit them if and when they please. Thus the places to which they journey in books may become familiar haunts, though they may be places they may never visit in real life.

Through literature the present and the past become living realities, for books



convey thoughts and feelings of people who are living today or those who lived long ago. Children thus come to understand new aspects of human beings and the forces that move them. They see the world of humans and nature in several dimensions.

Humanizing experiences through literature could serve several functions in the growth and development of young children. They could help young children develop a good self-image and a sense of dignity as individuals; they could help young children feel a new awareness and sympathy or empathy; they could help young children live more fully in the world of reality and the world of imagination.

□

Piaget in the Context of Primary Education

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Piaget and his associates have given useful information regarding the mental development of a child. What is needed now is that this information is used to improve the primary education The purpose of this article is to introduce Piaget's work to the primary teachers and to give an idea how it can be used in primary school teaching.

THE MENTAL development takes place through the development of mental structure It is not known till now what is the neurological or chemical construction of these mental structures (also known as schema). Their existence is known through the behaviour of the child. The simplest schema may be in the form of a definite response to a stimulus such as to stop crying at the sight of his mother. Generally these structures are complicated and include a series of actions. The development of mental structures takes place due to the experiences gained and the physical maturation. At the time of birth only a few structures are present. One structure may also be useful in doing many activities. For example, the schema of grasping is used in holding toy, bottle, cloth, breast, finger, etc. In this sense the schemas are mobile. Schemas are still more mobile when these are used to accomplish some object and are not the object in itself

Development of Mental Structures

As said earlier, at the time of the child's birth only a few schemas are present. The child cannot perform other activities until the development of schemas are related to them. The mental development is a continuous process taking place due to the interaction of the child and environment Thus the interaction of the child and environment is more important than the development of the child. Four factors are mainly responsible for the development of structures: (*i*) Maturity of nervous system, (*ii*) Experiences from environment, (*iii*) Social transmission, and (*iv*) Self-regulation.

Out of the above factors the maturation of nervous system is attained with age. For example, a child of four months has not the maturity that he can control his hands and feet completely. Walking is possible after attaining certain amount of maturity. Similarly, the activities such as speaking, sitting, marking, etc. need a minimum maturity and it is not possible to perform these activities before that. The child gains experience through two sources : by manipulating the objects present in the environment and by participating in the social activities The first category includes playing with toys, stones, glass, spoon, etc. The second category includes the experiences gained during play and other activities with peers. It is during these activities he comes to know that others' views and experiences may be different from his own. This helps him to think in a more balanced way

Last and the most important thing which is responsible for the development of child is self-regulation. It helps in refining, modifying and making complicated and viable the mental structures. In the initial stages of the mental development the interaction with concrete objects is mandatory. During the interaction he gains experiences of two kinds : one which can be perceived by the existing mental structure and the one which cannot be perceived by the existing mental

structure. The former controls his behaviour in a preconceived way. For the later, the present schema is found to be inadequate. These modify the existing structure according to the experience gained through play, investigation, etc. The new structure is more complex and adequate. The process of improving the structures continues till the process of mental development.

Periods of Mental Development

The mental development starts from the birth itself. According to Piaget, it can be divided into four periods :

1. Sensorimotor period (0-2 years)
2. Preoperational period (2-7 years)
3. Concrete operational period (7-11)
4. Formal operational period (11-15 years)

The years indicated above are only approximate and should be taken with flexibility. However, the order of these periods is fixed and none of the period can be skipped. Research studies indicate that the development through these periods can be accelerated or retarded to some extent The main characteristics of these periods are indicated in Table 1.

Sensorimotor period : During this period of development the child learns to control his hand and feet to a good extent. He also learns that the things around him have a permanent existence and is able to do the goal-directed activities. For example, if the toy is covered by a cloth, he will remove the cloth and will try to search the toy.

Pre-operational period : This is the second stage of development and is mostly a transitional phase between sensorimotor and concrete operational period. In this the child lacks the mental balance and can easily be led to contradictions He is passing through semi-logical and pre-logical phase. If two rows of equal number of coins are placed before him and the distance between the coins is increased thus increasing the length of the line, he thinks that longer row has more number of coins. If now the other row is increased in length, though in his presence, he feels it has more coins He is not able to conceive that the number of coins does not depend on the length of row. Conservation of numbers is gained by him through experiences at later stages.

TABLE 1

PERIODS OF MENTAL DEVELOPMENT AND THEIR CHARACTERISTICS

Period	*Characteristics*	*Major Change*
Sensorimotor period (0-2 years)		From reflex action to representation and sensorimotor solutions of problems
First stage (0-1 months)	Reflex actions only. No discrimination possible	
Second stage (1-4 month)	Coordination in the actions of hand and mouth Discrimination through sucking and licking	
Third stage (4-8 months)	Coordination in the actions of hand and eyes. Repetition of new activities	
Fourth stage (8-12 months)	Actions related to two schemas can be coordinated. Conservation of objects	
Fifth stage (12-18 months)	Attainment of new objectives through activities. Can do activities in a systematic way	
Sixth stage (18-24 months)	Acquisition of new means through mental activtiy, Internal representation	
Pre-operational Period (2-7 years)		
Egocentric Stage (2-4 years)	Solving the problems through representation; language development Language and thought egocentric	From sensorimotor period to pre-logical thought and solutions of the problems
Intuitive stage (4-7 years)	Unable to solve problems based on conservation. Judgement based on perception rather than logic	
Concrete operational period (7-11 years)	Can solve conservation problems, can perform logical actions on concrete objects, solving of problems regarding abstract things is not possible	From prelogical thought to logical actions on concrete objects
Formal operational period (11-15 years)	Can solve logical problems, ability to think scientifically. Cognitive structure fully developed	From logical solution of concrete objects to logical solution of all kinds.

Based on Piaget's theory of cognitive development. B Wadsworth, David McKay, 1971

Conservation of various quantities are attained at different ages The typical age at which these are attained is : Length (6-7 years), Number (6-7 years), Area (7-8 years), Liquid (7-8 years), Density (7-8 years), Mass (9-10 years), Weight (9-10 years) and Volume (11-12 years). Here again the age shown is approximate although the order remains the same.

Concrete operational period : In this period thoughts are more logical and stable. The child has a concept of time, space and numbers. He can serialize the things according to these but cannot use logic at abstract level. His mental activities are still based on perception and he does not know to find out the relationship of a variable by controlling other variables.

Formal operational period : This stage starts in the adolescent age. The child can differentiate between possible and impossible things. Due to the development of formal operation structure, he can think logically. It does not mean, however, that he always thinks logically. Still he has to learn a lot from scientific experiences but he has sufficiently developed brain.

Implications in the Context of Primary Education

The studies conducted by Piaget are elaborate and tell us the stages of mental development However, these do not tell us directly how the children should be taught In such a situation, the knowledge which we have got about the mental development can only provide us the guidelines for teaching methods It has two parts. The inclusion of suitable concepts according to the stages of development decides the curriculum and content. The second part tells about the circumstances which are conducive to the mental development. The use of these can be helpful in deciding the teaching methods and activities to be used in the class.

Here we shall mainly concern with the later part During primary education the age of children lies between 6 to 11 years and most of the children are in concrete operational period Thus we shall restrict ourselves mostly to those features which are important in this period. These are summarized in the following paragraphs.

1. Activities are the main source of learning : According to Piaget, both physical and mental activities are important for the cognitive development. It does not help the child hearing the discussion or the talk. For real development, the child has to take part in the activities. For example, to develop the concept that solids do not change shape, whereas liquids and gases do change their shape according to the shape of the container; the volume of the liquids does not change whereas gases change the volume according to its availability. Talking about these concepts will not be useful. These can only help him in answering a set pattern of questions and he is confused if the questions are not in the familiar style. To understand these concepts properly it is necessary for the child to perform various activities on substances of various kinds which includes solids, liquids and gases Only these activities can lead him to the right conclusion. As a teacher we can provide him the rich situation which gives him a chance to interact and thus help in mental development.

2. Children learn through social interaction : One of the characteristic features of pre-operational period is that the child thinks in egocentric way. He is unable to understand others' viewpoint. What he thinks is the only possible viewpoint that can exist. Other views are simply not possible. Social activities give him a chance to interact with others which helps develop thinking. Therefore, for the proper development of thoughts it is necessary the child plays, talks and comes across with other children. These social activities are necessary to bring about the necessary change otherwise the development is lopsided. Thus, we find that for the proper development of a child, it is necessary that he gets opportunity for two types of activities One category is of those activities which he does first on the concrete level and later on abstract level. The other category is of those activities which he performs at social level in the company of other children. There is a need to give an opportunity to perform the activities of both types. Table 2 gives the concepts and related points of activities from two units of Class III which can be performed by the children. On this basis the activities can be done individually or in groups.

TABLE 2

CONCEPTS AND RELATED ACTIVITIES

Concepts		*Points of Activities*
1. There are three states of matter	1	Observation of different kinds of objects after keeping them in different containers Finding out the objects which change their shape in this Classification on this basis
	2	Finding out the substances which flow and which do not
	3	Sugar and salt-powder also change the shape according to container. Out of sugar granule and water drop, which changes shape ? Observation in this respect
2. Matter changes from one state to another	1.	On boiling, where does the water go ? Why does the water droplets are seen on a cold object when brought near the top of boiling water ?
	2.	Why does the ice feels wet ? From where does this water come ? Where does the ice go when kept in a closed container for some time ?
	3	Why kerosene smells from a distance ? When kept in an open container, why the kerosene level decreases ? How those two things are related ?
	4.	Observation of open camphor after some time. Does it decrease in quality ? Why ? Where has it gone ?
3. Many things dissolve in water and form solutions	1	Taking substances such as colour, salt, coal, sugar, lime, etc. and finding out which substance dissolves in water. Are all of them soluable ?
	2	Which substance dissolves less in quantity and which dissolves more ?
	3.	Do big pieces dissolve easily or small pieces ?
	4	Cold water dissolves more substance or hot water ? Is it the case with salt also ?
	5	Can we separate dissolved substance by filtering ? Is there any method for this ?
4. House is necessary for us	1.	Observation of various types of houses. What are their uses ? Which houses are more useful ?
	2.	What are the essential features of a house ?
	3	Observation of houses of birds and animals. In what respect they are uncomfortable than our house ? Which house is beautiful ? What are their special features ?
	4	From the observation of children, making out the differences of the houses of very cold, rainy and plane places

Here it is important to point out that this type of activities are commonly discussed in the class and not actually performed The verbal discussion is not of much help at that level of mental development For them it is most important to manipulate the concrete objects.

3. *The rate of mental development can be increased by certain environment :* The respective age indicated for various stages of mental development is not fixed but approximate only. The intelligent child is little ahead of an average child To accelerate the rate of development it is mandatory to provide such an atmosphere which gives them a chance to get experiences of various kinds. Playing and manipulating various things increase the rate of development. Experiments have indicated that by providing a specially structured environment, it is possible to increase the rate of cognitive development.

Colour and Colour Combination

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Children express their imagination in their own way. They can draw a tree with a vertical black line and a green patch at the top of it. They can represent the sun by a red circle and rays by some small lines surrounding that circle It is better not to disturb their creative ideas. But sometimes they invite parents' and teachers' appreciation and comments. Their constructive suggestions about how to blend colours and obtain new shades and tints, may inspire the young children to materialize their dreams on paper through a variety of colours. This article attempts to give some useful hints on the use of colours and their various combinations.

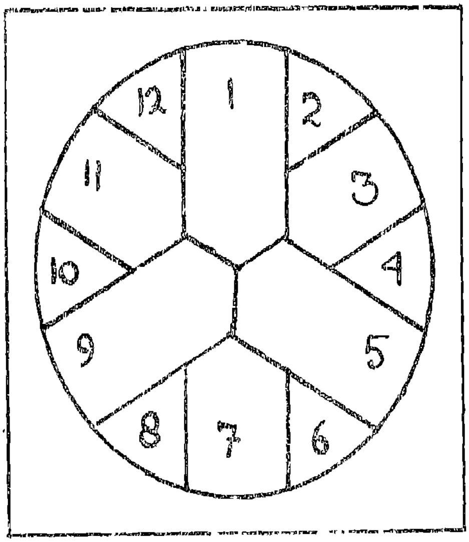
For some, colour is expressed in the form of wavelength, for others, it is the result of absorption and reflection efficiency of the object and still for others, it is only a gift of nature.

THERE ARE three *primary colours*—red, blue and yellow. These colours are original colours, that is, they have not been produced by combining any two colours Colours produced by mixing any two primary colours in the right proportions are known as *secondary colours* For example, we can get the green colour by mixing yellow and blue in the right proportion. Violet is the result of the combination of blue and red, while orange is obtained when we mix yellow and red. If we go one step further and mix a primary colour with the secondary colour adjacent to it on the colour circle we get what are known as *tertiary colours* : yellowish-green, bluish-violet, redish-violet, bluish-green, yellowish-orange, and redish-orange.

Black and white are two other colours which the artist has in his palette By using these two colours the artist is able to produce a much larger variety of colours By adding a little white or black to a primary, secondary or tertiary colour the astist obtains many tints and shades

As mentioned above, the two colours have to be mixed in the right proportion to obtain the desired colour. The chart given below shows the proportions which are required to produce the secondary and tertiary colours.

Since we have so many colours and shades we may find it difficult to combine them to achieve the best possible values in a colour design.



COLOUR CIRCLE

1 Yellow	*2 Yellowish Orange*
3 Orange	*4 Redish Orange*
5 Red	*6 Redish Violet*
7 Violet	*8 Bluish Violet*
9 Blue	*10. Bluish Green*
11 Green	*12 Yellowish Green*

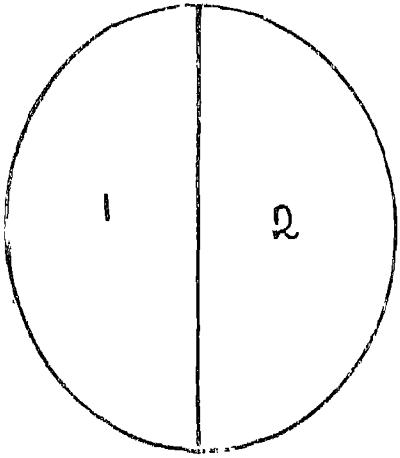
1 Yellow + Blue = Green
(2) (1) (3)
2 Yellow + Red = Orange
(2) (1) (3)
3 Red + Blue = Violet
(2) (1) (3)

Secondary Colours

4. Green + Yellow = Yellowish green
(1) (1) (2)
5 Green + Blue = Bluish green
(2) (1) (3)
6. Orange + Red = Redish orange
(2) (1) (3)
7 Orange + Yellow = Yellowish orange
(1) (1) (2)
8. Violet + Red = Redish violet
(1) (2) (3)
9 Vilolet + Blue = Bluish violet
(1) (1) (2)

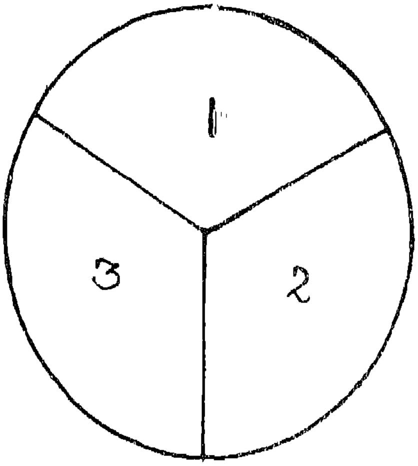
Tertiary Colours

Actually, there is no hard and fast rule for the combination of colours An artist may use any colour in any proportion he wants, but the combination should appeal If not to all, at least to some viewers of his work A contrast design is generally attractive. A well-balanced use of contrasting colours produces the maximum brightness. To obtain a contrast in a design we should use colours which are opposite each other in the colour circle Such a combination is known as *complementary colour combination.* For example, the combination of red and green, or orange and blue, or violet and yellow in a design gives us a complementary colour combination. Actually in any complementary colour combination three primary colours are used. Suppose in a complementary combination we have used red and green, and if we split green into its original colours we will get two primary colours, i.e yellow and blue This combination, therefore, has three primary colours—two of them in the combined form of a secondary colour and one in its original primary colour form.



COMPLEMENTARY COLOUR COMBINATION

1 Red *2 Green*



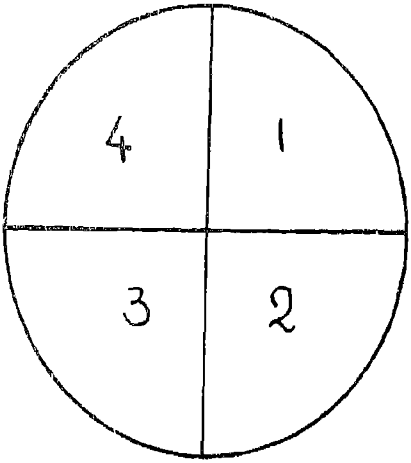
[illegible]

1 Red *2 Bluish Green*
3 Yellowish Green

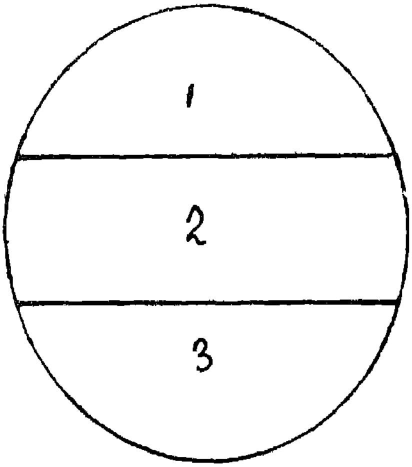
If we combine a colour with two other colours situated on either side of the complementary colours we get a *split complementary colour combination.* For example, in a design if we use bluish-green and yellowish-green with red, a split complementary colour combination is the result. Other combinations can be obtained by referring to the colour circle.

We can also use two closely related colours balanced by their complementary colours. For example, if we combine yellow and its adjacent tertiary colour, which is yellowish-green, with violet, a tertiary colour, redish violet, we will get a *double complementary colour combination.* The other combination can be obtained by choosing colours from the colour circle.

Simple, pleasant colour combinations may be produced by combining two or three colours of a like nature and adjacent to each other in the colour circle. Such a combination is known as *analogous colour combination* A design using orange, redish orange and red may be considered as an example of an analogous colour combination. Such a colour combination can be obtained by using one primary colour along with one secondary and one tertiary colour.



1 Yellow *2 Yellowish Green*
3 Violet *4 Redish Violet*



Harmony through the use of a single colour in a design may be termed as *monochromatic harmony*. In such designs one pure colour is combined with its darker and lighter shades to vary the degree of brightness For example, red may be combined with light red (pink) and dark red (brown) to produce this harmony. This type of harmony may also be created by tinting (mixing white) or shading (mixing black) with the pure colour. For some, colour is expressed in the form of wavelength, for others, it is the result of absorbtion and reflection efficiency of the object and still for others, it is only a gift of nature. Visible colours, radiated from the sun are red, orange, yellow, green, blue, indigo and violet, and have wavelengths of 400-600 mili-microns. A leaf appears green because it absorbs all the other colours of light except green. Another object looks red because it reflects only red after absorbing all the other colours of white light. By observing carefully the sun, the sky, the sea, trees, fire and other colours in the nature, we gradually develop our concept of the effect of colour. No one can normally imagine a fire to be green in colour. It has to be red or any redish colour. We have, therefore, learnt to think of red as a warm colour. Similarly, since the colour of leaves is green while that of the sea is blue, we have come to regard green and blue colours as cold colours.

Generally, bright colours such as red, yellow and orange are known as warm colours while dark colours, namely, blue, green, and bluish-green are grouped as cold colours. Some bright colours give an illusion of advancing the design while dark colours have the effect of receding and create depth in a design. Red conveys the impression of boldness and strength in a design, black has an effect of sadness and yellow makes us think of sunny days

By the intelligent use of colours we can create a dynamic harmony in a design. The choice of colours by the art designer depends on his imagination and aesthetic sense The best possible way to gather knowledge about colours is to observe very critically the colour combinations found in the nature.

Whither Educational Development ?

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WHILE DESCRIBING the culture and civilization of Europe and the USA Swami Vivekanand told an American Lady . "Madam, in your country a tailor makes a man civilized but in mine it is character which does so." Character forms the basis of an individual's and nation's development. That is why the development of character cannot be separated from the aims of education. In our part of the world religion is given greater weightage to money. In our scriptures a human being has been asked to overcome his animal instincts and become qualified for Nirvana. In the modern perspective the meaning of Nirvana is to free oneself from the complexities of life which envelop him in the social, economic and ethical behaviour.

Indian culture as compared to the external behaviour gives more importance to inner and moral progress. This spiritual and moral progress forms the focal point of education. In accordance with the mainstream of the national development, thinking is going on for the achievement of this goal in education for a democratic and socialist society but somehow neither the standards of education appear to be improving nor does the university atmosphere reflect the expected seriousness. Educational development stands out as a complex question mark before the educationists. Conferences and committees have paved the way for thinking on this issue but in the absence of a proper solution

"Madam, in your country a tailor makes a man civilized but in mine it is character which does so."

remedies have been incomplete and the malaise of the educational world has been increasing

There are serious obstacles in the way of educational development but how to remove them ? Our cultural traditions are disintegrating, our education is not responding to the needs and aspirations of the people, and also education is not able to adjust to the changing times The structure of education is so defective that people are losing faith in it. Modern education has crippled people. Perhaps, the reason for it lies in following the educational system of colonial days or perhaps in the deteriorating national character and pursuing selfish ends to the extent of being indifferent to national interests. This is something which is percolating from top downwards disintegrating the highest moral values in life.

Until a strong base of reactivating education is presented the talk of developing education would remain ineffective. Research activities would have no impact until the conscience of the teacher is aroused and values like duty, submissiveness and dedication take birth again. These cannot be rekindled by official fiats. Today the future of the country is being shaped in the classrooms. We should look for teachers who are dedicated, conscientious and wide awake.

There are teachers who have all these traits even during these days where we lack encouragement and values. In the absence of proper selection procedures temples of learning have become places of corruption where the talk of educational development has no meaning. We come across institutions where a teacher teaches about the great people of India and eats away the institutional funds. Institutions are run according to the whims of the headmasters. Bad teachers and bad traditions alone are enough to destory the nation. W M Ryburn has compared the head of the institution with a pilot, who can by his competence save his boat or get it sunk due do his folly. He should be the coordinator of activities and the centre of balance. In colleges and universities, let alone primary schools, prevailing jealousy, strifes and an atmosphere of bitterness like that of rival political parties prevent the rise of educational standards.

Stress has been laid constantly on the selection of competent teachers. In the opinion of the Indian Education Commission the teacher's competence and character undoubtedly play the most important role in influencing the shape of education and national progress. Rousseau denies the possibility of an ordinary person playing the role of a skilful teacher. He must possess the heart of a father and be a little better in behaviour than an average person. The Gurukul system is a living example of this Unfortunately, caught in the stranglehold of bureaucracy, education has fallen into evil days. Neither the dedication has any meaning nor is there any arrangement for motivating teachers.

Our researches would remain incomplete until the universities pursue their academic goals and the teacher understood his role properly. The biggest asset of a nation constitutes dedication and character of its people.

Educational institutions must be the centre of the formation of character and extension of knowledge. Teacher alone cannot accomplish this. There is need to transform the entire structure of education. Everywhere people talk of revolution but without a complete revolution nothing much can be expected in the present frame of society.

Educational administration requires a basic change Teachers should have a separate code of conduct and they should not be required to please their bosses while performing their duty well. For achieving the goals like national integration, re-establishment of spiritual and moral values, etc our education must be constructive, productive and autonomous. Our education must make a child capable of thinking for himself and taking independent decisions The Indian Education Commission (1964-66) held that no nation could entrust the job of defending itself solely to police and the army. National security depends to a large extent on the mentality of its citizens and their love for discipline. The future of the nation rests on their discipline and level of thinking. The sole aim of educational research should be to suggest a proper educational structure to achieve these goals in education.

How could proper treatment of education be expected without a

diagnosis of all the educational ills. The first task in this direction would be of the selection of proper teachers. In a few states service conditions of the teachers are not very encouraging. Placed under adverse circumstances a teacher could also be discouraged. A few points are worth considering while thinking of raising the educational standard :

- (*i*) Administrative reforms including appointments of educationists in educational administration.
- (*ii*) Promotions on special seniority basis for work in educational development
- (*iii*) Establishing effective inspection. Two reforms are necessary for improving educational inspection : (*a*) creation of the posts for academic evaluation by educationists, (*b*) administrators in administrative ranks, and (*c*) proper evaluation of work and offering incentives for motivation.

The development of education should start from primary schools. A panel of competent teachers could be assigned this job for which they would themselves create atmosphere for work and introduce reforms. Teachers should have precedence in these matters. They alone should be entrusted with the task of educational development and not bureaucracy. In place of alienation and indifference the educational development is possible only when dedication and service gain an upper hand. □

Trends in Art Education : A Perspective

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...art education...must enchance children's creative ability, imagination, curiosity and discovery.

THERE HAVE been many evolutionary changes in the scheme of art education since the inception of formal school education The countries, where the new concept on art education has been introduced, were essentially having identical problems like ours. A survey of their historical perspective in regard to nature and purpose of art will facilitate us to compare our problems with them. This will also show us the process of evolution of art education.

A bulk of the published work in pure and applied research has come from the foreign countries. These bibliographies constitute many researches in psychology and the aesthetics of the art of children. These studies can be useful for our art educators and student-teachers for their professional growth as well as for a new direction in this field. One needs, however, to consider its proper application in the existing circumstances.

The Concept of Art Education in the 19th Century

As a matter of fact, the formal art education on a large scale did not appear till the end of last century. In those days, the teaching of the subject was referred to as 'drawing' and one had to learn something of drawing by imitating the prints and some of the basic principles in prespective. This was taught by the professional artists to those who had inclination or a talent of the sort. The aim was to teach the technique of drawing and painting and to prepare the child for a definite vocational pursuit. It was the time when the quality of art was judged on the technical skill achieved by an individual. Gradually, the subject of art interested the young ladies who considered drawing as a cultural asset. A new element in the aim was thus introduced that the drawing is for the cultivation of tastes. Later, due to the industrial impact, the drawing which so far had confined itself to the activities of graphic representation included geometrical and mechanical drawing as well. The emphasis was then laid on industrial and applied designs.

As a matter of fact, the formal art education on a large scale did not happen till the end of [illegible] century. But those days, the teaching of the subject was referred to as drawing.

Art Education in the 20th Century

The affluent society of the early 20th century, with increased wealth, patronized the movement which dedicated itself to 'art for art sake'. This made art free from the domination of machine. Its aim was to foster admiration for exhibitionism. But its main weakness was that it was not related to the life of the people. The break-through in the earlier approaches appeared in 1920, because of the spreading influence of a synthetic method in art. The term 'synthetic' originated by A.W. Dow, defined the purpose of art as the expression of beauty rather than representation. The emphasis was to develop the sense of appreciation through teaching of art. This brought an awareness among the majority to seek finer forms and colour harmony in the surroundings and in the things of daily life. Gradually, the nucleus of appreciation widened and included, besides painting, the subjects of architecture, sculpture and industrial arts. Art was then introduced as a formal subject in the scheme of school education. A systematic pattern of art education was designed which had well defined three-fold direction. It was introduced as (*i*) Fine Art—drawing, painting, sculpture; (*ii*) Appreciation Art—culture, taste, discrimination; and (*iii*) Industrial Art—craft and art for industry. This scheme was certainly an impressive one, because for the first time it had spelled out different areas of learning in art education. But its effectiveness was lost because the methods applied were stereotyped. It was again revived in 1931, but this time on a new set of objectives and on the basis of new methods. Among the specifics, there was an emphasis on the need of individual's self-expression and cultivation of habit. The function of art was also made clear that it is not to teach techniques but to develop tastes, skills, appreciation, correct habit and worthy use of leisure

[illegible]

Most of the schemes which followed thereafter in art education had been influenced by the results of experiments and researches which were then available. There appeared a term 'experience' in the scheme of art education with reference to the function of art. This term was obviously discovered by John Dewey who considered art as an experience. In its practical value the activity of art was supposed to lead a child to undergo an experience in order to create the art work The teaching of art began to be interpreted in terms of providing an experience. Thus, the various areas of learning were represented as the graphic experience (drawing), the ornamental experience (design), the mental experience (appreciation), the motor experience (construction), etc. In 1940, a new functional definition of art was introduced which made art a means to the growth and the development of the child's personality It recognized one's life experiences and inner world as a source of the subject-matter and relied on art for giving a personal expression to these feelings, thoughts and ideas. It presupposed that the form and technique of art would follow due to the individual's creative need Art, in this concept of education, was taken to mean a way of life rather than a product. Another definition of the function of art appeared in 1941 which emphasized self-expression for social adjustment.

The affluent society of the early 20th century, with increased wealth, patronized the movement which dedicated itself to 'art for art sake'.

It identified a basic need of the child in the social adjustment and integration It suggested art education to be taught to all children because adjustment in the society is the need of every individual These are some of the stages in the evolution of trends in art education, which is still a continuing process

Some Experiments in Art Education

An important experiment, made by Franz Cizek of Vienna, is referred to as 'free expression'. His discovery has made a considerable impact on art teaching during the last half century. He found during art classes, which he was running in his studio, that children when left undisturbed produced very good compositional effects without copying. He, therefore, suggested that we should look to the creative ability of the child when he goes through the process. When he is so engaged, he certainly pours out his pure feelings and takes pleasure in art In this respect, rating and grading is not necessary because it is his own creation

Another experiment conducted by Schaeffer Simmern on groups consisting of various people from different sections brings to light individual differences in the expression of art. In his theory of 'natural unfolding' he observed that individuals differ on biological and environmental background. He found that every individual grows with different visual perception and every individual can develop his own style in his own way due to his drives, needs and aspirations. His findings can help art teachers to realize the fact that individual, by undergoing the process of art, not only achieved the artistic experience but his personality becomes a unifying whole, i.e. his personality develops through art activities. He emphasized that every child should be given the chance for self-expression and for developing his own personality.

Victor D' Amico in his book, *Creative Teaching in Art*, has stressed the need that the child should develop his capacities in the skill and techniques when he is expressing himself freely. According to him the art education should be of the type that the growing child may either develop himself a consumer of art or an artist but in either case a better integrated person because of the art experiences.

John Dewey, a great educationist and a philosopher, says in his book, *Art as Experience,* that in the act of doing art activity the child should himself have an experience and that relationship will give him complete fulfilment. He further says that undergoing the process of art will result in a new perception—mental, emotional or physical

The findgings of some of these eminent educationists indicate that the element of creativity is common in all and that experience is basic to expression. They also suggest that the freedom is necessary with regard to the choice of subject-matter, mode of expression and learning of skill for each individual In their view, the programme of art education to be made vital, must enhance children's creative ability, imagination, curiosity and discovery. □

For proper personality development it is essential that good foundations of social behaviour are led in the early childhood.

The Role of Parents in Moulding the Child's Behaviour

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EACH PERSON behaves in the society in a particular manner which depends upon the specific traits of his personality. His social behaviour ultimately reflects upon his social relations and the respect he commands in the society. For proper personality development it is essential that good foundations of social behaviour are laid in the early childhood. This includes the child's relations with his friends and brothers and sisters, sympathetic attitude for the youngsters and polite behaviour with the elders. Many parents undermine their child's rude behaviour saying that he is just a child and will learn to behave by and by. This type of mistake, though committed inadvertently, may give a wrong direction to the child's personality development. The home is the first and most important step in the process of his socialization and the parents play an important role in the process. And the responsibilities of the parents only get divided between the parents and the teachers when a child starts going to school, not that they cease to exist.

Tackling the Child Tactfully

A child starts mixing up socially when he is two-three years old, and starts resisting and making unjust demands. He likes to eat a few selected things and does not want to share these with others. Sometimes he insists on getting things which he knows are not available at home. He may not under-

stand that a particular thing cannot be procured immediately, and may behave rudely in order to get his wishes fulfilled. In such cases parents should realize that to throw tantrums, to cry or to insist on getting something is a part of a child's normal behaviour. In this situation the parents should *neither* try to fulfil the child's wish nor beat him up. If his wish is fulfilled, the child picks it up as a habit to get what he wants and if scolded he develops fear and starts feeling unprotected. Sometimes the child may become still more impertinent. In such situations the parents should tackle the child a little tactfully but firmly. If the child's demand is just it should be met with but when it is unjust the child's attention should be diverted towards something interesting so that he himself may forget about what he was insisting on. He will thus learn to obey the elders which will help him to get disciplined in the later years

[illegible]

For making the children disciplined many factors count. Parents must be sympathetic and should never show indifference towards them. To become angry on the poor children without any fault of theirs or punishing and criticizing them in front of others develop resistance in them. If the children are punished by the parents on other people's complaints, without giving them a chance to explain, they may become rebellious. Parents must remember that a child too has his own personality and self-respect and he is as much sentimental about it as an adult. So never hurt his feelings and try to humiliate him in front of others If at all he is at fault make him understand it sympathetically.

[illegible]

Parents should first practise what they preach. They may tell the child not to tell lies but may do so themselves. Many a time if somebody comes to meet the father of the child and his father is avoiding that person he asks the child to tell that person that his father is not at home. Such incidents develop contradiction in the child's mind and he is unable to understand what is good

[illegible] the children [illegible]

How children behave in company

again depends upon how they are trained. It is quite common to see children misbehave when some guests come because they know that the parents will not scold them in front of guests. When some eatables are served they start taking handfuls and make a mess When children go to others with parents they may not sit quietly, pick up some things and even break them If there are other children in the house they may start quarrelling with them Therefore, proper training about how to sit, talk, and to behave outside should be given by the parents. There are no hard and fast rules for it, the parents should have to be tactful and firm They can teach the children good manners and polite behaviour.

Making the Children Self-dependent

Parents must also teach children to be self-dependent from an early age. They must be taught to help the parents in whatever little they can. Many parents feel that the child is too young to help himself and will spoil the things instead of helping. This attitude is wrong and does not let children learn to do whatever little they can. Some parents think that children should not help under the pretext that they are studying, which is again wrong Such children, when they grow up, will not be able to work just because they have not been taught to do their bit right from the beginning. Then the parents have to bear the total responsibility of bringing them up Therefore, 'catch them young', is the slogan to make them self-dependent. When children are 5-6 years old, parents can teach them to put on and put off clothes, fold them properly, put them in proper place, clean their shoes and keep their books, toys, etc properly. Very soon the parents will realize how much it saves their time and children to start learning good habits and the importance of keeping things in order and help themselves.

Another very important part of developing healthy attitude towards work is maintenance of uniformity between the expected behaviour pattern of boys and girls. In our Indian society boys are pampered right from the early childhood and girls are taught to be subdued. Girls are expected to help in the household, do well in studies as well as learn all the arts of good house-keeping while the boys are left to bully and have their way so that when boys grow up they are not only too dependent but find it hard to help in household because of their mental make-up. If they were taught to do their bit when young, they will learn to be more independent. In this way they will not only help themselves but provide a helping hand to the parents as well.

> **Parents should realize that to throw tantrums, to cry or to insist on getting something is a part of child's normal behaviour. In this situation the parents should neither try to fulfil the child's wish nor beat him up**

It is also essential for the parents to understand children's field of interest and help in its optimum development. If a child is interested in a particular field, say games, music, art, drama, etc., parents should try to equip the child well so that he can pursue his favourite activity well. Educational toys too are helpful for developing creativity in the child.

Watching Children's Activities

It the parents watch the child's activities with interest they can always notice whether the child is taking interest in the activities suited to his age-group or not. They must first try. to find out the reason for the lack of interest. Is the child suffering from some physical ailment or something is troubling him mentally ? They may seek professional help for proper diagnosis and follow up with suitable treatment. Physical ailment scan be taken care of by the doctor and mental disturbances need to be tackled very tactfully and sympathetically. If he is not keeping in good terms with a friend, the parents may also speak to the friend and try for a patch-up after making each one of them realize his fault, accept it and make a vow not to repeat it again. This will develop in them a sense of cooperation as well as help them in keeping good relations with each other.

When children start going to school parents must also see that their wards take interest in other activities of the school in addition to studies. This is most important for development of creativity. Some parents discourage children from participating in the school's cultural programmes and other extra-curricular activities. If parents think that spending money on dresses or other knick-knacks for such programmes is a waste, children develop inferiority complex and feel belittled in front of their teachers and classmates. This complex not only suppresses their creative abilities but also develops in them indifference towards parents. Therefore, it is very essential for the parents to encourage their wards to participate actively in school activities and also themselves take active interest in these.

Inculcating the Spirit of Healthy Competition

Parents can also play an important role in the development of a feeling of healthy competition in their children, be it in the field of sports, cultural activities or studies and save children from developing negative attitudes such as jealousy, back-biting, etc. Much importance should not be given to the rank that the child attains in his schools He should only be encouraged to put in his best and should never be criticized for not winning a prize or such other rewards Otherwise, he will start feeling jealous of those above him and will think about some ways or means to pull them down. Thus his socialization will get diseased and his friends will not like his company and will try to avoid him, secluding him in the process and making him feel an intruder Therefore, parents have to be very cautious in these circumstances and never try to be over-ambitious, which will do only harm rather than doing any good to the process of child's all-round development and socialization.

Parents are overall guardians of young children whose tender minds they can mould whichever way they like. With what impressions the young children grow depend upon the ways of parents, teachers, friends and other near and dear ones. If they have healthy attitudes and are polite and well-mannered surely the children too will pick up the same.

Teaching of Language through Environment

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What is Environment ?

THE WHOLE visible world—the earth, the sea, the vegetation, men, animals, insects, the stars, the atmosphere—is environment. Some of this is within the reach of our eyes and some beyond that. That which is around us, we can see and know about it. And, which is beyond the reach of our eyes, we can learn about it through others and through reading about it. This environment influences our life immensely and in many ways. Therefore, the more we become familiar with this, the more useful it is for us. In order to gain such familiarity, we need to observe meaningfully and minutely the things around us. Otherwise, we will only see the environment and so we will neither become familiar with it nor establish oneness with it. This is happening in most of the developed countries of the world, where, as a result of blindly and ruthlessly exploiting the sources of nature, man is gradually getting deprived of its pleasures and bounties. The naturalness of man's life is fast disappearing and he is becoming artificial, unnatural and, therefore, uneasy day by day

The Need of Environmental Studies

In India such a situation does not exist. The child of big cities in this country is getting farther and farther from nature. For instance, he knows the flour but where from and how it is obtained, only a few know about it. This ignorance has necessitated the need of studying the environment and involve it in teaching-learning situations of various school subjects. Environmental studies, in fact, is an educational therapy in which it

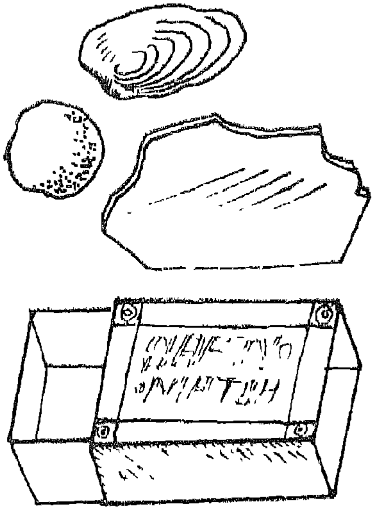
Language is closely related to life and life to environment. The environment provides variety to life and this variety of life is expressed through language.

becomes absolutely necessary to stress on meaningful observation which is the keynote of learning. This develops the vocabulary and language of the child which is ultimately responsible for the development of his life

Environment and the Development of Language

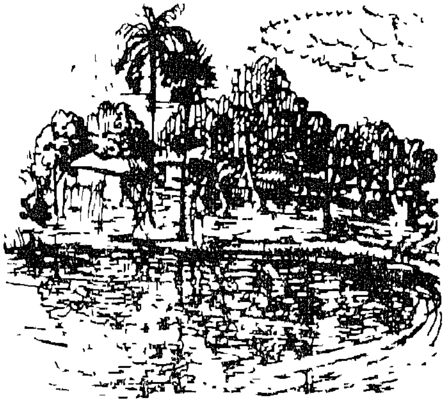
How does the meaningful observation of the environment help to develop the language of the child ? For,finding an answer to this we have first to find out, what is language ? Language constitutes names of various objects and the quality—good or bad, high or low, thick or thin, etc Language denotes action walking, sleeping, eating, etc. It also specifies various ways of actions—slowly, fastly, quickly, etc. It also has expression of feelings, i e. the voice of the inner self. Also, language is world and world is language. Therefore, the more eagerly and more closely the child observes this world, the more he knows about it and develops the vocabulary and language and with enriched language he will come closer and closer to the environment and get one with it.

Let us clarify it with an example. Suppose while playing, a child gathers different things lying around him a pebble, a shell, a piece of glass, a coloured paper or a piece of cloth. Generally the children love to store such things. What makes them do that ? No doubt, the shape, the colour of various things they find, attract them This may be an useless stuff for the elders but it is a treasure for them. You can exploit this habit of theirs for teaching and developing their language For example, ask the children various questions related to their collections such as : (i) What is this ? 'This is a pebble. This is a shell This is an empty match-box. This is a piece of glass'. Surely, in this way, you are developing their visual and auditory



discrimination and adding to their vocabulary. (ii) What shape is this ? What colour ? Is it round/rectangular ? Is it thick/thin. Is it heavy/light ? Is it heavier/lighter than this or that ? Is it white ? Is it smooth/rough ? etc. In this way the child is learning about a variety of things. This knowledge can prove very useful later He can compare one with the other on the basis of various dimensions. He becomes familiar with the qualities of things around him. He can easily choose or reject the things he likes or dislikes. This enriches his vocabulary also.

It is necessary for the children to know the use of various things. This helps them to establish the required relationship with them and to make further discovery about the things and to find out new things This also helps them to know different behaviours and functions of various things. In this way the vocabulary and language of children will develop speedily. To make it more clear, take a comb, a flower and a pen and find out about each as to what it is and what it is for. Or, find out what is that we smell, we write with, we use for combing the hair or what is the one that has this or that initial or ending sound ? Or, what is it made of ? Where is it available and for how much ? Or, tell the names of trees you see and vegetables you eat.



Learning through Environment

To engage the children for studying the environment and learning various things from it, divide them in groups Ask one group to collect various types of leaves Ask the other one to watch the birds Ask the third one to have a round of the fields to find out who is doing what. Ask the fourth one to have a round of the village to meet various people and find out about them—their occupation, their dresses, their food, etc

As a result of such activities the children collect leaves, watch the birds and have a round of the village and the fields. Now, ask the children to classify the leaves according to their size and shapes. Let them generalize and compare one with the other. Ask the children to relate the experiences of their going round the village and the fields. In this way they will learn to observe, to classify, to discriminate, to describe, to put questions and listen to the answers. All these are various ways of learning the language through environmental studies

Let us take the children to a vegetable market. Or, if this is not possible, find out from them the names of various vegetables they eat and know. Similarly, let them tell the names of various fruits and trees. These very names can easily be used to teach them various sounds of alphabets. For example, ask them the name of a vegetable that has this sound in the beginning or that in the end. Ask them to tell the name of a fruit that has a particular sound in the beginning. Ask them to tell the name of a vegetable which is white, a bit longer and has *li* sound in the end and is available in the winter. In this way the word *mooli* can be elicited. This will also help them to understand the clue and associate it with the objects they know. They can guess and conclude. These are some of the comprehension skills which they can practise through such activities. With the help of such familiar objects they can learn different sounds of the alphabet and discriminate one with the other And, if they already know the alphabet, this knowledge can be further consolidated for permanent learning.

An Incident of Mauritius School

An incident can be cited in this connection. This has happened in Mauritius when the author visited a school there. It was Class V. The author found some students sitting in the back benches looking with blank eyes The teacher informed him that they were slow-learners. They could not acquire even the elementary knowledge of Devnagari alphabets. They were declared slow-learners or backward and neglected. The children required special attention and a special teaching methodology to teach them. The author motivated the children asking them to tell him the names of some vegetables available in the market and elicited from them the words, *aloo, parwal, kathal, adrak, dhaniya, matar, phali, shalgam, salad patta, kakri, imli, papita,* etc. I went on writing the names of the vegetables on the blackboard and could easily elicit from them the initial sounds of a, k, p, ph, m, t, etc. The teacher got the hint and exploited the immediate environment of the children eliciting the names of vegetables, fruits, trees, utensils, flours, birds and animals in teaching various sounds and forms of the alphabet. On the author's next round he discovered that they were no more slow-learners.

Development of Higher Skills

Higher skills of language also can be developed through various activities related to environment. Witnessing folk dance, *Ramlila, raslila, kavi sammelan, kavi darbar, mushayra,* etc.

helps in listening comprehension Participating in discussion, debates and recitations helps in improving expression and modulation of the voice Attending various religious or social ceremonies in the family or in the neighbourhood helps in enriching the related vocabulary and understanding the environment in a better way. Similarly the children can be asked to go to a park on any Sunday to watch and relate orally or in writing what happend there. They can be asked to interview a milkman to find out and report as to how many cows, goats, buffaloes he has got, what is his profit, what is his investment, etc They can be asked to to write about it or to report orally. This will help them improve their expression and use related vocabulary Instead of asking them to write on unfamiliar topics, they can be asked to write about the topics with which they are familiar in their own language. Whatever activities are given to them will lead to the learning of language as an outcome. The learning thus acquired will be more permanent and meaningful too. It is so because all such activities involve expression through language—names of objects, their qualities, their use and related functions. This will help the children in acquiring the knowledge of the elements of language, in developing listening comprehension and also in developing their oral and written expression. This will also help them to understand the environment in wider perspectives and establish close relationship for better social and material adjustment.

Such activities do not minimize the importance of textbooks and other instructional material. As a matter of fact, these activities help children consolidate and enrich their language competency acquired through textbooks and other reading material. Thus this therapy is complementary to formal teaching and since it is capable to sustain the interest of the learner, it is much more potential, useful and effective and can be used in teaching-learning situations of various school subjects including language. □

Men must, as far as possible, be taught to become wise by studying the heavens, the earth, oaks and beeches ..they must learn to know and investigate the things themselves, and not the observations that other people have made about the things.

—JOHN AMOS COMENIUS

TEACHERS WRITE

Children's curiosity and teaching

THE BASIS of teaching children is curiosity and repetition. They are gifted by the nature to behave in this manner and in their absence a child would not be able to do anything. A clever teacher can exploit both of these gifts to the students' best advantage. Students copy promptly the pronunciations, writing and reading styles of their teachers. The mistakes of the teachers are thus passed on to their students. They would learn to mispronounce or write inaccurately should they follow wrong models. Once they learn something wrong, it is very difficult to correct them thereafter.

The tradition to teach correct handwriting is of great importance. The teacher should not only teach the correct alphabets but also write them down before children to copy. A single mistake at this stage would prove very expensive. While children are copying out words and letters, the teacher is advised to encourage them to do so artistically This needs patience on the part of the teacher A child is likely to begin by writing illegibly and inaccurately Teachers need not get impatient with this. Indeed, they should continue persevering in raising the morale of the children by encouragement and correct guidance Anger or show of temper would merely complicate matters.

Similarly, while correcting the mispronunciations or asking to repeat the correct ones a teacher must remain equally patient. He has repeatedly to point out the exact place where they commit mistakes. This obviously calls for a lot of patience, labour and time.

Teachers must take care to read aloud poems in the classroom, with proper intonation and pauses. This would furnish students with an appropriate model Teachers must correct the repeated mistakes of the children with patience. Love and affection in this regard has a lasting influence Any haste or impatience shown by the teacher in the correction of a mistake by children would result in distaste for that work, therefore, polite behaviour of the teacher and encouragement of the child would have the desired result.

Curiosity forms the basis of teaching children. The degree of curiosity in a child reflects the extent of his learning. A teacher is, therefore, required to satisfy the child's curiosity properly in order to lay the foundation of learning. It has been observed that parents and teachers often start decrying the children for their strong curiosity and even beat them up. This unfortunately show the immaturity of the seniors. In reality the job of the seniors is not only to satisfy the curiosity of the children, but also to encourage it. They must create conditions so that students put them questions and are so motivated that they are able to satisfy their curiosity themselves.

In methods of teaching, question-answer technique occupies a place of pride. One digests food better only when one is hungry. Curiosity is the hunger for knowledge by exciting which the brain of a child is developed. No one enjoys eating bad food or improperly served food. Similarly, no one welcomes a quarrel at the time of serving food. All this applies equally to satisfying a child's curiosity A teacher is like the bearer who serves the right quantities of dishes and inquires about second helpings with a smile.

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Village library and the primary teacher

IN THE post-independence period schools have been opened in almost all villages Like all other people the villagers also want to increase their knowledge, entertain themselves and employ fruitfully their leisure hours. They also want to learn about modern methods of farming and contribute their mite in the national development. The Government of India is spending crores of rupees in spreading adult literacy. These neoliterates need libraries even more than the others or else they would quickly relapse into illiteracy.

I started a public library in our village in the memory of Netaji Subhash Chandra Bose. At first I consulted a few people, then called a meeting of the villagers and opened the library. In a government middle school we opened a Teachers' Reading Club with 17 members. We used to subscribe to journals on a contributory basis. In another village we started another reading room with a couple of newspapers and monthly magazines. We housed this library in the drawing room of a benevolent person without any payment. The members of the club would come at night to read the newspapers and magazines.

From my experience I can say that it is very easy for teachers to start a library in their own village because they know all the literates in the village. They have merely to suggest to the willing group of people to contribute small amounts of money to begin with. The reason for its success lies in its being completely voluntary. No one is under pressure for anything. Only those are made members of the club who have a taste for reading and are willing to contribute their share of expenses. Anybody could be made its president. An almirah in the Panchayat Ghar would do to start with. Any one of the members could distribute books. The office-bearers could also be elected for the purpose. All that one needs to do is to resolve once. The rest of the problems can be taken care of in any gathering. People want easy-to-read, colourful and needful books. They would find books related to agriculture particularly helpful.

There is no need to feel shy of the work involved in this venture. People with similar tastes would come forward to join hands with the organizer. In these days of hardships one person alone cannot subscribe to all these journals and cannot afford to buy new books to satisfy one's curiosity. The organizer is merely trying to resolve their problems. In fact all could join hands and frame rules for running the library according to their needs. They can resolve all problems by sitting together and discussing. When persons of similar taste and similar motivation come together, no problem would stand in their way for long

SATYAPAL 'BHARAT BHUSHAN'
Headmaster
Government Primary School
Mohali, P.O Bagari, Distt. Sangrur, Punjab

[illegible]

DEAR MR. SINGH,

I saw you lose your temper in your class. You are a class-teacher of a lower class. You are one of our older teachers Then why all this boredom and impatience ? You were trying to explain the use of words to a student repeatedly while holding his ear in your hand. It looked as if you were impatient.

You are a trained teacher. You would please recall that this kind of behaviour finds no support in any of the books on Principles of Teaching or Methods of Teaching It is a matter of experience. To us a word like 'rag' would appear quite distinctly different from 'rug', but this may not be so to a child. A young child would not be so mature and may find no such distinction.

Young children keep on repeating such mistakes and it is possible that you get annoyed over these. Not only do children commit mistakes in pronunciation but also in writing. Later on when they recall their mistakes they do feel sorry about these.

You would have noticed that Mr. X keeps committing the mistake of mispronouncing 'sh' as 's' and 'g' as 'z'. He hardly ever realizes what he is doing

But a child is no adult, therefore, Mr. Singh ! he would take time to learn by repetition and practice In a month's time he starts reading and writing. He requires your assistance in this regard. Your loving care would rectify this error.

Perhaps, in your class most of the children are like that. On an average, they find it difficult to both decipher the written word or to remember it They would continue to commit these mistakes for a couple of months more. They take quite some time to be able to read properly and write well. Out of these children some like Mr. X never learn either to read or write. Such children do not need your impatience but care and affection. If you forget this, Mr. Singh ! these children would be nowhere They would take themselves as dummies or stupid and would start hating school and stop coming to it. These children cannot catch up with the others and this fact disheartens them. Any act of cruelty on your part would merely complicate the matter. They would lose all the hope from themselves.

It is a delicate matter. No teacher under the circumstances could improve the state of affairs by resorting to physical punishment or chastizement. This, in fact, relates to one's memory. These children have to be told that they are no fools. With time they would pick up reading and writing and spelling out words.

A few of these children would learn how to spell with special instruction They are taught to coordinate letters with their sounds. They must be pointed out simultaneously what letters in a word stand for which sound. That is how they would overcome their weakness. If the school cannot help, the guardians should be requested to do the needful.

Our schools continue to adopt the traditional approach to teaching They still regard rote-learning, and 'spare the rod spoil the child' as their best allies. In a large class with so many children needing personal attention, it is not possible to follow these traditions.

Children are also not well composed when they come to school. They may have some physical disability, deafness, fatigue or suffer from sleeplessness. They can also be educationally retarded due to several factors. Not only this, Mr. Singh ! you must also remember that a child could commit spelling mistakes for the simple reason he cannot decipher any letter or the alphabet Under the circumstances a child must be helped on this count.

There are reasons why a few children always feel so neglected and diffident in studies. You know quite well that smart children do not always pick up friends among the duller ones. The latter type of the children also would never be adjusted.

In my opinion, therefore, such children should not be chastized at all. Deal with them with patience and love. May be you have to establish contacts with the guardians of these children to find out the 'whys' of their weakness. Perhaps a physical check-up of these children may also help.

GOSWAMI RAMBALAK
Assistant Headmaster
Gyan Kunj, Village Dudhpura
Samastipur, Bihar

☐

NEWS AND VIEWS

A case for teaching statistics

WHY SHOULD statistics be taught in the elementary and junior high schools? Why not wait until students are more mature until they are capable of formal reasoning or until they are earning money of their own—before we expose them to statistical ideas and techniques? These questions are raised by Albert P Schulte, Director of Mathematics Education for Oakland Schools, Pontac, Michigan, in *Arithmetic Teacher*, March 1979.

One answer is the way students learn, in or out of school. If students are actively involved in the learning process, they will be explaining and inquiring, and they will be collecting and organizing information. Students need to know how to tally, how to arrange information in a table, how to present information usually by using a graph. Students need to understand what is meant by "the average score on the test", they need to realize that variability, such as that found when measuring student heights or hand-spans, is a part of the real world. They apply statistics in science, in mathematics laboratory activities, in metric measurement activities, in reading and interpreting tables and graphs in social studies, and in their own games. Further, young students are imposed to the same uses of statistics that adults are. They have the same need to become knowledgeable and critical consumers at their level.

Skills in dealing with data and with interpretation or use of statistics do not come quickly, and do not develop all at once, just as the ability to read develops slowly over many years, and just as the reasoning process grows over time, the ability to work with statistical information also develops gradually. If the process is not started in the elementary school, a brief exposure to graphing and descriptive statistics in the high school may not be sufficient to foster the methods of dealing with data and making sense out of it that are desirable outcomes of statistical training.

Including statistics in the elementary school curriculum is not new. Most mathematics tests provide a sequence in which students begin to graph at at an early age, and students use tables through much of elementary school. Present-day science programmes make use of tallying, graphing, sampling and finding the average of a series of measurements as routine parts of their investigations.

Curriculum study groups have been unanimous on the need for training in statistics—collecting, organizing, and interpreting data. One of the most succinct discussions of statistics occurs in the Euclid Conference on Basic Mathematical Skills and Learning.

The report says, "Currently, information often takes the form of numbers, sometimes many numbers at once. Students should know not only how to set up simple tables, charts, and graphs, but also how to read them and draw conclusions. Well-organized charts and graphs are especially helpful in recognizing patterns and trends in a collection of numbers. Moreover, students should be confident enough with numerical data that a mass of number *per se* is not intimidating".

Why teach statistics in the elementary school ? First, it is useful to elementary students, in their school subjects and in their daily life out of school. Second, it is needed by adults to cope in an increasingly statistical world, and it takes repeated exposure over time to develop the desired ease and familiarity with statistical concepts. Thus the process should be started early. Third, it has been advocated by many curriculum groups. Fourth, statistical topics are already included in the curriculum. Finally, there is another compelling reason. It provides an excellent chance to apply many of the mathematical skills taught in the elementary school.

Winners and losers in the number game

THE FIRST primary maths survey contains cold comfort for schools Most pupils can do simple sums, it says, but find it difficult to apply their knowledge, reports Bob Doe in *The Times Educational Supplement* (1.2.80.).

Most 11-year-olds can do simple sums but their grasp of multiplication, division, decimals and fractions is weak, says the first report of the Government's Assessment of Performance Unit in *Mathematical Development Primary Survey* (Report No. 2), HMSO, covering England and Wales. Many of the 13,000 pupils in the sample also floundered when the simple sums they were able to do when presented in a straightforward way were presented in unusual or problem-solving formats. The report says:

> Most 11-year-olds can do mathematics involving the more fundamental concepts and skills to which they have been introduced and also simple applications of them. There is, however, a fairly

sharp decline in performance as pupils' understanding of the concepts is probed more deeply and their basic knowledge has to be applied in more complex settings or unfamiliar contents

While pupils generally understand the basic idea of symbols, graphs and diagrams, many find translating and manipulating symbols too abstract to deal with and perceive only what is immediately evident in graphs and diagrams.

U.S maths survey comes to similar conclusions

Maths tests given to school childern in the United States two years ago have come up with similar results. A report from the United States National Assessment of Educational Progress says: "Although they can generally handle the mechanics of mathematics, many American students are stumped when it comes to applying these skills to everyday problems".

Pupils can add, subtract, multiply or divide reasonably well, but they have difficulty in deciding what computation is called for when problems are presented in word form, the United States Agency says. Many lack real understanding of such concepts as fractions, decimals and per cents.

The NAEP has been monitoring standards in the United States since 1969, and the British APU has copied many of their mathematics testing features. But performance in each country is not directly comparable as the Americans test at 9, 13 and 17, and the APU at 11 and 15.

The apparent inability of students to tackle the applications of mathematics is interpreted in the USA as a result of a "back to the basics" movement, of too much attention to drills and of insufficient problem-solving practice.

[illegible]

Based on a report published by Joan Chadbourne, Assistant Professor, School of Education, University of Connecticut at Storrs and Beth M Foulk, a fourth grade teacher, Pawnee Elementary School, Pawnee, Illinois, in Teacher.

"HENRY, are you daydreaming ?" How often have students been asked this question with implied criticism ? What is a child actually doing while daydreaming—escaping or thinking creatively ? Daydreaming can be an escape. It can also be a fantasy form that involves the students in true learning. The wandering daydream often slips off unused. However, when guided by the child or teacher, it can be productive.

We have found fantasy to be a valuable teaching and learning tool at every level—elementary through graduate school. Daydreaming guided into fantasy is a way to prepare students to concentrate to enrich the curriculum, and to increase self-knowledge.

If we want children to participate more fully in their learning, it's important for us to provide experiences that prepare them for concentration. Relaxing, anticipating through visualization, and becoming aware that attention is a matter of choice are elements leading to full concentration.

According to research, students who are at ease are better learners than those who are tense. Pretending to be in a pleasant safe place and taking a trip through the body to discover and release tensions are two fantasy activities that help students relax. During fantasy, the body and mind usually become more at ease and at the same time more alert and able to focus. Relaxation fantasies are especially helpful when the students come into the classroom excited and boisterous.

Gloria Castillo, a first grade teacher, reports in George Brown's *Human Teaching for Human Learning*, that during eight months of using fantasy with her classes, the children increased their attention span and became more alert.

I Polster and M. Polster, in *Gestalt Therapy Integrated*, describe how Jin Brown, a football player, prepared to play by visualizing the details of an upcoming game through relaxation preparation, he previewed situations he might confront and thought of strategies for responding. Pre-experiencing through fantasy helps people to prepare for all kinds of activities, especially those connected with some apprehension.

George Brown himself sometimes uses a focusing fantasy to prepare students to become more involved and to listen in class. He takes them on a fantasized trip to a place they would like to be and then brings them back to look over the real room. After three such trips, he asks them to decide where they prefer to be away or involved in the upcoming learning experience. Although we choose all the time, too often we don't realize that we are determining the focus of our attention The Brown exercise helps children realize that they have the choice of participating or being off in a daydream. And it helps teachers realize that they "choose" to daydream. Their "fantasy trips" do occur, even if they may not want them.

Robert Ornsteins' study of left-and-right hemisphere brain functioning indicates that the most effective teaching should always try to involve both hemispheres in learning. Ornstein found that left-brain functions are rational-linear, and verbal, right-brain functions are experiential, nonverbal and holistic. Fantasy is an intuitive and creative right-hemisphere function.

Truly effective teaching unites rational and abstract concepts with vivid personal experiences. Too often we provide either a hands-on experience or an abstract presentation. Either mode alone is not enough A balanced curriculum involves both hemispheres in learning. It also leads to longer retention.

Fantasy also increases self-knowledge. Explaining true feelings and situations might seem too threatening in real life. Fantasy can make it easier. The intentional use of fantasy can clarify the distinction between fantasy and reality, between thoughts and actions. Fantasy gives us great opportunities to explore our strength and improve our effectiveness.

People often hide their deep-seated angers, fears and hurts Some even build emotional walls, which grow over a period of years. And, eventually, these people's emotions are dulled. Fantasy provides a gentle release that can result in enriched emotional expression.

Letting children know it's all right to fantasize and to explore their thoughts often helps them to recognize the differences between fantasy and reality. Fantasy helps overcome feelings of powerlessness, thus leading to more effectiveness.

Guidelines and activities

The following guidelines can be helpful in eliminating distractions and should be repeated before each fantasy until students are totally familiar with them :

1. The children's eyes may be open or closed. While closing the eyes works best, some children are uncomfortable with their eyes closed Have these children focus on something that does not move.
2. There should be no talking during fantasy unless in answer to a direct question.
3. There should be no touching. The children should be told that no one is going to "poke" them during fantasy.

These guidelines offer steps for providing a climate of relaxation for fantasy.

1. Ask the children, "Are your shoulders comfortable ? If not, move them so they are comfortable. How are your arms ?" Proceed through different parts of the body—neck, back, legs, feet.
2. Ask, "How are you breathing ? Are you breathing fast like a little puppy ? Try to imagine you are breathing like an ocean wave, that gently and slowly goes in and out, in and out... ..".
3. End each fantasy by asking the children to come back; sit up, and

be statues Being a statue eliminates talking before all are "back to reality".

Some activities are helpful for extending fantasy from a right to a left-brain function.

1. Always encourage children to talk about their fantasy. They will be surprised how 'real' and easy fantasizing is.

2 Unconditionally accept their fantasies, there is no right or wrong in fantasy. The child is the only authority on "what happened". The fantasy process does not depend an intelligence Children who have academic difficulties have fantasies just as vivid as those of the bright students

3. After talking about their fantasies, suggest that the children write a story about "what happened", they might want to draw pictures of what they saw.

There are many creative applications of fantasy for the teachers to discover on their own. Though frustration with a chronic daydreamer is a common problem for all teachers, daydreaming can work for both the students and the teacher as an educational tool Daydreaming seriously treated as fantasy can be a powerful tool. And it is a "fun for all". □

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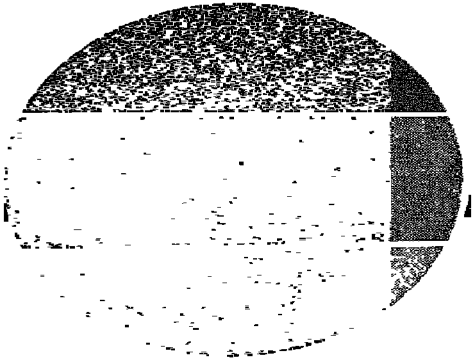

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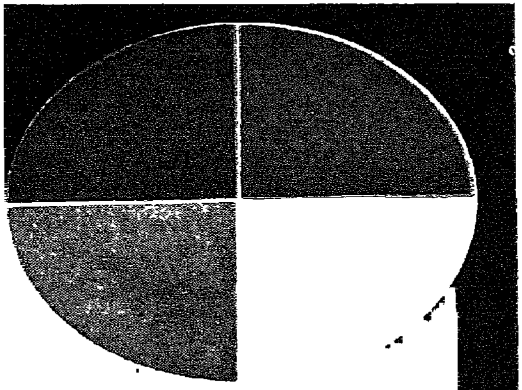

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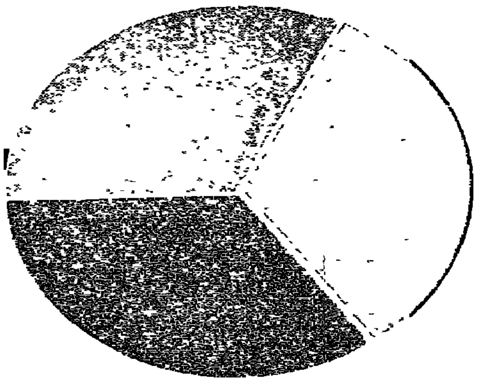

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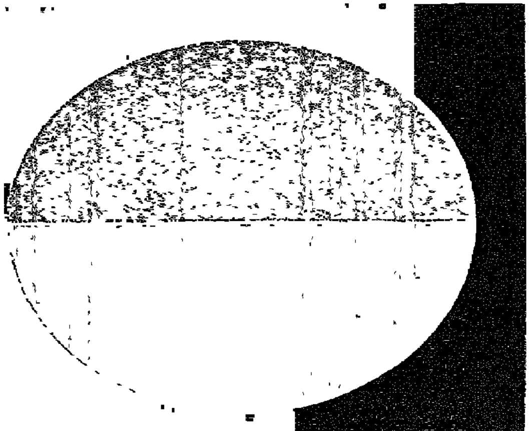

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THE PRIMARY TEACHER

Vol V No. 4 October 1980

☐ *The Primary Teacher* is a quarterly brought out by the National Council of Educational Research and Training, New Delhi.

The journal intends to give to the practising teachers and concerned administrators authentic information about the educational policies being decided on and pursued at the central level. It aims at giving meaningful and relevant material for direct use in the classroom. It would carry announcements of programmes, courses of study, etc., offered at various centres in India from time to time. It also provides a forum for the discussion of contemporary issues in the field of education.

The major features of *The Primary Teacher* are :

1. The educational policies concerning primary education
2. Questions and answers
3. States round-up
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By education I mean an all-round drawing out of the best in child and man—body, mind and spirit

◆

When it is remembered that the primary aim of all education is, or should be the moulding of the character of pupils, a teacher who has a character to keep need not lose heart

M. K. Gandhi

Editorial

If only teachers could come forward to help eradicate illiteracy part of Gandhiji's dream could be realized

Gandhiji and Premchand

EVERY YEAR we remember Gandhiji on 2 October, write a few ritualistically appropriate sentences and forget about it as if our job is over as soon as the 'in-thing' has been said We fail to recall Gandhiji's concern for the Harijans and the poor, the sick and the dying, the illiterates and the helpless Until India remains a backward economy we cannot hope to see all our brethren live a contented life. The majority are poor, backward-looking and illiterate If for no other reason, Gandhiji's relevance for this silent, suffering society continues to be very valid. We must act to ameliorate the lot of these people. If only teachers could come forward to help eradicate illiteracy part of Gandhiji's dream could be realized.

Equally relevant is yet another Indian, though of a different genre, as it were. This other Indian was an old primary school teacher who loved to teach children and also write about them. After a long stint in teaching he retired to become an internationally well-known literary figure. His name was Munshi Premchand (31 July 1880-8 October 1936) Having started a Marxist he soon fell under the spell of the Great Mahatma and began writing stories about the poor, downtrodden mass of people to attract the attention of the powers that be to better their conditions of life. His recurrent theme were the daily wagers in urban and rural India, migrant labour, helpless illiterate men and women, who even now outnumber the rest. He was opposed to foreign rule nearly as much as he was against the oppression of the bureaucracy. We have won our Independence but the oppressive nature of our society remains unchanged. This makes the relevance of teachers like Premchand extremely valid One hopes we had a few more primary teachers like Premchand, a true follower of Gandhian movement and philosophy.

R. P.

Primary Education in China

R. P. KATHURIA
Regional College of Education, Bhopal

IN MODERN China primary education is universal and free. The curriculum is simple and life-oriented. There are six subjects in early primary classes and seven in senior classes. Most of the time—11 to 12 periods—is devoted to the learning of Chinese language (*Yu wen*). Mathematics is taught for six periods, politics and handicrafts for two periods each, and painting and music for one period each. Thus there is a 24-25 periods a week time-table. From the third grade physical education and general knowledge containing history, geography, etc. are also introduced. The students of the last two classes in these schools work for a week in each term in the fields or factories to gain real-life work-experiences and for developing dignity of labour.

Nearly half of the time in the schools is devoted to the learning and mastering the Chinese language. As it does not have an alphabet the students have to master the word pictures which require more time and effort. The teachers in the schools adopt latest methods of teaching.

Communism and communist political system are the basis of all the school subjects. This may be termed by many as political propaganda but it is the part of the game. Communist behaviour is emphasized at every level. The Red Book of the thoughts of Mao tse Tung forms the basis of all education. Every school has an advisory committee consisting of teachers, parents, factory workers and peasants. Their objective is to provide the children a right type of useful-in-life education.

Today there is no one under the age of 40 who cannot read and write. In 30 years' time this is the greatest achievement of the People's Republic of China.

The neighbours of all ranks help in the day-to-day functioning of the school The pupils' mothers help in the school in so many ways. Thus the primary education in China is a combined responsibility of the family, school and society and not only of the government. In China the child is not the private property of the parents but is regarded as the wealth of the nation.

Teachers and parents have a close contact. Parents are always welcome in the school for discussing their child's education. All the students come from the neighbourhood. They are divided into classes according to their areas and streets. After school

hours these children get together in their areas and study or practise their lessons. The parents and the teachers living in the area look after these children. Many of the student programmes are organized on area basis This helps the students to develop in them a spirit of helping each other

Every school has a workshop and a farm where the students work on different times After gaining practical work-experience here the students are deputed to work in the local factories and farms. This helps the students to learn to work and live in the groups and have faith and respect for labour. Handicrafts, music and dancing are the inseparable components of the primary education. The collective performances of children are very colourful and impressive. The sounds of the traditional musical instruments are very enchanting. Their songs are political and communism-oriented. The children are provided ample opportunities for cultural programmes not only in schools but in the Red Soldier Groups and the Children's Palaces (*Shao-nien Kung*). The children in their spare time learn gymnastic, acrobatics, ballet, modern dancing, instrumental music, singing, opera, music, painting, paper cutting, electric wiring, aeroplane-modelling, hair-cutting, etc. These Palaces take the children for visits to places of revolution, factories, ports and other such places of interest.

For evaluating the learning of the students and the teaching performance of the teachers, open-book examinations and other such types of tests are held from time to time. The important features of evaluation here is the self-criticism by the student and opinion of the classmates about him. The merit list is not prepared on the basis of the marks obtained in the subjects. In evaluation importance is given to the combined efforts of the children, teachers and others as the Chinese Revolution is not the revolution of the few but it is the revolution of the masses. Hence the group and group work is given all the importance here. The educational revolution which has made the primary education universal here is the result of the political revolution in China. Today there is no one under the age of 40 who cannot read and write. In 30 years' time this is the greatest achievement of the People's Republic of China. □

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7-45	Attendance and Theory
8-05	Morning Exercises
8-40	Lesson
9-25	Short Recess
9-35	Lesson
10-20	Short Recess
10-30	Lesson
11-15	Lunch and Rest at Home
14-00	Lesson
14-45	Short Recess
14-55	Lesson
15-40	Lesson Ends

CLASS IV CURRICULUM TIME DIVISION

Chinese Language	11 Pds.
Politics	2 Pds.
Mathematics	6 Pds
Physical Education	2 Pds.
Music	1 Pd.
Painting	1 Pd.
General Knowledge	2 Pds.

Agriculture 1 week per term

Factory work 1 week per term

A picture was hung in the class and the teacher asked the students to see it and to talk about it. The picture showed a student with an umbrella walking in the rain and another student without an umbrella running behind him.

The teacher asked the class, "What do you see in the picture ?" One student got up and said, "Chairman Mao told us we should have close relations with each other, love and protect each other and help each other." The teacher questioned, "You are right but if the student with the umbrella lives nearby and the other one lives farther, what should be done ?

Many students yelled together, "The one with the umbrella should walk up to the house of the other student and leave him there and then walk back to his own house.

Photos . Embassy of the People's Republic of China

A Day in a Single-Teacher School at Carrington

SUNIL BEHARI MOHANTY
Lecturer in Education
Radhanath Training College
Cuttack

Single-teacher primary schools in our country are often termed as expression of poverty. But such schools are existing even in affluent countries like the United Kingdom. The author in this article gives his impressions of a British single-teacher school at Carrington which he visited in February last.

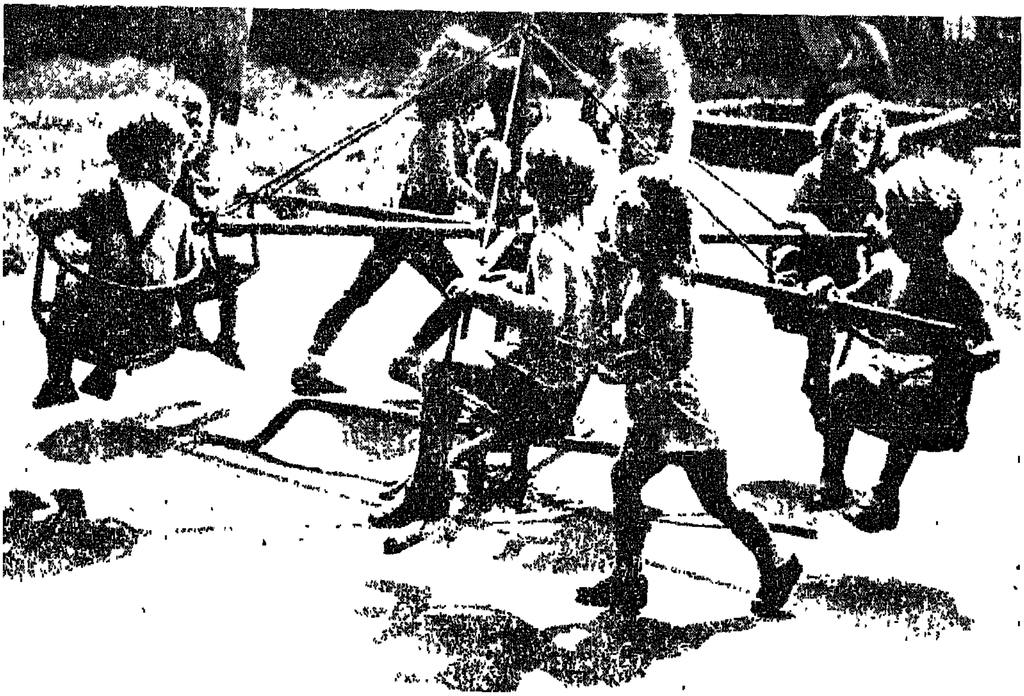
CARRINGTON is a well-planned and preserved village. Recently, it has been awarded the Scotsman shield as the best kept village of the country. The village has 50 houses with a thin population. Mrs. Munroe, the single teacher, lives with her husband and two children in the quarter attached to the school. She has been working as a teacher for the last 12 years, out of which she has spent three years as supervisor in primary education. She may not be exactly called a single teacher. She is free from teaching work for two days in a week to look after her official work involving school meals, transport, official correspondence, etc. A relief teacher looks after the teaching work for these two days Besides, there is a music teacher for a few hours once a week. So is the case with physical education teacher. The remedial teacher comes on three afternoons a week. She has an auxiliary to help her in office work. There are two other ladies who work part-time—one for cleaning the school and the other for taking care of school feeding programme. School meals come from a nearby bigger primary school. The school hours are from 9.00 a. m. to 3.30 p m. on five days a week. The primary school in the U.K. consists of seven classes

One does not understand why people in charge of educational management cannot have such a system (single-teacher schools) in our country by which the craft teachers, games teachers, music teachers, etc., sitting idle for many hours in a high school, can be asked to do work in the nearby primary or middle schools.

When I reached the school, the physical education teacher was taking care of the children. She is based in a nearby high school. After taking the periods allotted in the said high school, the teacher goes to a few other schools to have the desired hours of work. She travels in her own car and gets fuel from the authorities. There are fifteen children in the school, out of which two are from Carrington and others from nearby villages like Cathall, Coldhall and Temple. There is a school bus which caters to the needs of the children of the region The school has a classroom, an office room, a store room, a dining hall and two toilets—one for boys and the other for girls. The school has 36 almirahs and three book-racks, containing more than 2,500 books, a television set, a filmstrip-cum-slide projector, two type-writers, etc The school gets annually about Rs. 8,000 for its contingent expenditures Some books are from the central library issued to the school for a length of time.

On my arrival in the classroom, the children greeted me They had been informed earlier about my visit by Mrs Munroe I told them about my country, state and language. Later, the children got their names written in the script of my language, Oriya, on their note-books. They presented me some drawings and paintings including a drawing of mine.

During lunch time, Mrs. Munroe went to her quarter. I ate the biscuits and fruits, brought from Edinburgh. On the said day, the children were provided with soup, rice, fish or meat and for non-fish-eaters, custard and a fruit Three children did not take school lunch, they went to their homes, situated in the village. Four



children did not have to pay anything. Eight children paid at the rate of nearly nine rupees per meal. Although it appears costly, by the British standard this is very much cheap. A lunch of this type will cost four times of this in a British hotel. The children who get free food were from weaker sections of the society. Before lunch hour, all children are supplied milk, which is free of cost for all.

I had not been present at the starting of the school. But I was present at the closing time. Fifteen minutes before closing time, children were asked to arrange their books, etc properly, which they did in ten minutes Then they formed a queue to go out. At the farewell time, I gave them ground-nuts and toffees. My visit to the school was a memorable one. It was my first visit to a single-teacher school.

One does not understand why people in charge of educational management cannot have such a system in our country by which the craft teachers, games teachers, music teachers, etc., sitting idle for many hours in a high school, can be asked to do work in the nearby primary or middle schools. This scheme will benefit especially our villages where children have to go to far-off places for pursuing their education.

Photos British High Commission

Writers of Children's Literature can Shape the Life of a Child

REKHA DAS
Department of Zoology, Khallikote College
Berhampur, Orissa

Children have been neglected all throughout and to focus this 1979 was declared as the International Year of the Child. The negligence of the child has been in various forms. Causes of negligence constitute a vicious circle. Their effects have been grossly damaging. To undo these and to make the children real pride of the nation, writers of children's literature have to play a pivotal role. Their literature has to usher in a new era in human life freeing our children from the age old shackles of undesirable and ignoble sub-human traits in their lives.

THE FACT that a full year in the century was earmarked as a 'Year of the Child' establishes the fact that our children have been grossly neglected through all these years. To focus attention on this sad negligence with a view to seeking remedies thereof, 1979 was declared as the International Year of the Child India is not the only country where children are neglected. Statistics show that in our country about 30 per cent of children in the age-group 6-11 (primary stage) and about 70 per cent of children in the age-group 11-14 (lower secondary stage) have no opportunity at all for prosecuting education of any sort Statistics also show that about 80 per cent of our children in the age-group 4-14 have to seek some gainful engagement in life to supplement and thus to support the finances of their families. These gainful engagements have ranged from begging to be in someone's employment for a wide range of duties Thus negligence of the children being so glaring a fact, it will be better to identify the forms of negligence, apparent causes and effects of such negligence, and then to settle down to outline the role of the writers of the children's and juveniles' literature, teachers and guardians in removing these hurdles and making a child the real pride of the nation

Forms of Negligence

Coming to the forms of our negligence of the children, I have already mentioned two : First, the deprivation of a child to educate itself in any institution, and secondly, allowing circumstances to exist that force a child to earn a livelihood not for himself alone but for the whole family The third form is malnutrition. Again, statistics in India have revealed that about 90 per cent of our children suffer from malnutrition of some kind or the other. Of the different forms of malnutrition, the protein-calorie malnutrition termed as 'quassiercor syndrome' in medical parlance is of the greatest incidence and once a child suffers from it, he becomes mentally, physically and intellectually weaker throughout his life. The fourth form of negligence is our attitude towards general health and sanitary conditions which result in a higher rate of child-death. Finally, the fifth form is the contents of our education —formal and non-formal– and educational materials including literature meant for entertainment and through that for the mental growth and psychological satisfaction of the child, given to our children.

Effects of Negligence

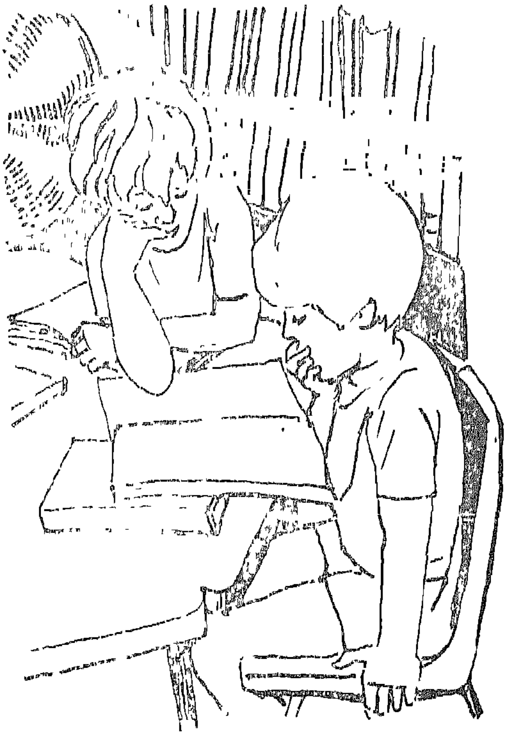
The first two forms of negligence that deprive a child from education result in a total sub-human standard of living in a majority of our people The first two coupled with the next two which involve a widespread malnutrition and general unhealthy and insanitary conditions of life are responsible for the high rate of child mortality. One is appalled by the figures of child-death in our country. Though children constitute about 44 per cent of our population, about 50 per cent of them die a premature death only within five years of their birth. Still distressing is the fact that of the total child-death about 60 per cent of the death is due to various infections and minor diseases which could be completely prevented with slight care and concern for the children. And finally, the fifth form of negligence has been responsible for the academic, scientific and technological backwardness of our people. This has ultimately resulted in the exploitation of our developing nation in the hands of other developed nations, and this has also been responsible for splitting our society into so many classes To think about the causes of all these, perhaps one will find himself opening the Pandora's box It is all a vicious circle of ignorance, superstition, poverty and all these causes with their ultimate effects are so intertwined, one

Negligence of the children being so glaring a fact, it will be better to identify the forms of negligence, apparent causes and effects of such negligence, and then to settle down to outline the role of the writers of the children's and juveniles' literature, teachers and guardians in removing these hurdles and making a child the real pride of the nation.

finds it almost impossible to break a link at any point in the circle.

The Role of Writers

While talking about the duties of elders towards the children, foremost appear the writers of children's and juveniles' literature. Though primary are the duties of the parent-guardians and the teachers who really matter in shaping the life of a child, in the prevalent circumstances of lack of education, poverty and the concurrent absence of an awareness in the general parent-guardians, the writers of children's literature become more important While amusing the children through their writings, they can make the elders in the society, including the guardians and teachers, aware of their duties and responsibilities towards the children. They can educate these elders too, thus bringing a mass awareness of the problem through their writings To achieve this end, means must not be creation of only entertaining literature. They must aim at creation of instructive literature and mass literature. Children's literature cannot be confined to human species of only a particular age-group. In fact, the definition of a child has to be recast so as to include such adults who might be equated with children of the conventional age-group so far as acquisition of knowledge of particular dimension about a subject of human interest is concerned. Literary creations like the stories, dramas, poetry, even cartoons, always leave a greater and so more effective impression on the human minds. So these writers can do what several social and national institutions have not been able to do so far This enhances the moral responsibilities of these writers. Let us, therefore, hope that the knowledgeable people who have taken to writing such literature, goaded with the realization of this added responsibility, will rise to the occasion and commit themselves to the task of nation-building whereby our children with new vigour will make the nation feel proud of them.



To feel proud of a child, the child should have all endearing characters in him. For developing such characters, our children should in the first place be free from the shackles of fear, prejudice and inaction which have partly resulted from myopic vision of the elders, and in the second place should be imbibed with true, really human and altruistic ideas and values of this noble human life

To end the discussion I can say that as the elders and intelligent elders let us take the initiative and let our realization of the whole problem be reflected in all literature for the children we bring out whereby the whole scenario will change for the better. □

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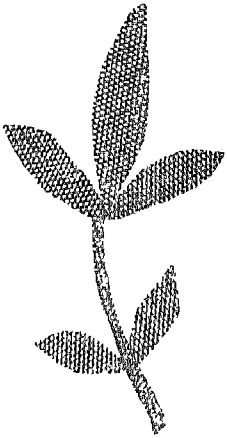

Religious Education for Children : An Action Programme

KALIPADA BANDYOPADHYAYA
Assistant Director
Small Industries Service Institute, Patna

This article is an extract from the author's monograph "Religious Education for the Children" (mimeo.), written on the occasion of the International Year of the Child (1979) The author gives here some useful suggestions for the development of spiritual and religious outlook of the children

INDIA is known all over the world as a great country from time immemorial not only for her vast natural resources but also for the greatness of her spiritualism and sacrifice for the good of the universal humanity. We have forgotten ourselves that is why we are so poor. If we look into these resources, even today, we can contribute many things to the world. In our schools children are not taught any lessons for their spiritual and religious development. For the upliftment of the human society it is necessary to include religious education in our curriculum. The following paragraphs deal with an action programme which will be beneficial for the development of spiritual and religious outlook of the children

Action Programme for Spiritual Education

The action should be a continuous one, so that the children of today, who will be youth tomorrow and elders day after tomorrow, can continue to enjoy the fruits of these efforts. Though this is meant for the children and we are concentrating our thoughts on such discussions for them, yet there is no objection if others get interested in it

For general education of the children there are schools in various forms, such as, nurseries, kindergartens, primary and secondary schools. The system of education varies from place to place The author's approach is not to deal with the present system of general education of the children because there are many eminent scholars and educationists to think on it and chalk out their plans and programmes. This action is for the spiritual education of the children which has remained neglected so far.

The Role of Teachers

In order to educate the children spiritually, the teachers should be trained first in their teacher-training institutes The subject-matter of such training will generally deal with (*i*) Essential and universal aspect of all religions, and (*ii*) Different questions likely to be raised by the children during their classes. At the initial stage the children may not be supplied with any book on this subject. The teacher will just discuss with them as a story-teller The lessons of the stories will be explained to them in a very simple and lucid way so that there is no burden on the brains of the children and they delightfully enjoy the discussions The teachers will invite questions from the children and try to answer them to their satisfaction They will observe the behaviour of the children in their day-to-day life and guide them whenever necessary. The children will be adjudged by the performance of the teachers.

Development of Body and Mind

In order to have a balanced development of both body and mind of the children, arrangements should be made for such nutritious food that will help the children to think good thoughts. They will have to be given training in controlling and concentrating their minds and also strengthening their will force.

Teacher-Pupil Relation

Cordial relation between the teacher and the taught is very essential in imparting spiritual education. The

authorities should take special care to see that the teachers are not mentally disturbed because of their pecuniary conditions. Dedicated teachers with an inclination towards spirituality should be selected for these spiritual classes.

How to Impart Spiritual Teachings

Spiritual teachings may be imparted in the following three parts :

(*i*) *Ideal class :* Discussions between the teachers and the students in the class should be based mainly on the questions raised by the students. The teachers should try to give answers to the satisfaction of the students. In this class practically there will be no home tasks for children. The children may be given any book on religious education which they can read in their leisure time and put any question for clarification by the teacher in the class. The children will appear in the examination on this subject but there will be no fear of getting pass marks unlike other subjects' examinations. This class should mainly relate to such topics that in future will make children good citizens of our country.

(*ii*) *Short stories :* Teachers should select some short stories having moral implications for narrating them to the children. Our country is a secular state and it is the duty of the teachers to select stories from different religions followed in our country.

(*iii*) *A few lessons to be remembered by the students :* The teachers should give a few lessons on religious education to students which they can remember. For example :

1. Service to the man is service to the God, Allah or Ishwara We can never help anyone in this world but we can simply serve. Brotherhood of men follows necessarily from the fatherhood of God, Allaha or Ishwara Coming of the same origin we are just like brothers and sisters in the same family of men.
2. Love binds and unites, hate breaks that bond and causes disunity and conflict. Therefore, we should always love all, irrespective of colour, culture, creed and caste.
3. Good character and good conduct are the best assets of the mankind to preserve, and as such we should all build our character well and behave with all as relatives and friends.
4. Sweet words and good dealings cost nothing but pay us much. They are our real treasures and they are more valuable than anything else in this world. We should never forsake them in life.
5. Cleanliness and purity are great virtues. We should keep not only our body clean but purify our minds and thoughts also. Nothing is bad or evil in the world, but they are simply our own creations of the ignorant mind. Let us,

therefore, wash out dirt from our minds first, and then everything else will be good to us.

6 Criticizing others results in some conflicts and misunderstandings amongst the friends but criticizing ownself paves always a pathway to perfection and peace

7. Work is worship. We should perform all duties sincerely well always in a spirit of duty for duty's sake, and never for any return thereof.

8. Moral courage is the real courage to accept all hardships for a right cause. No threat in this world can stop a moralist to achieve the goal of his life.

These are a few examples of lessons which can be taught by the teachers to their students to become noble citizens of the country. □

To me religion means truth and ahimsa or rather truth alone because truth includes ahimsa, ahimsa being the necessary and indispensable means for its discovery. Therefore, anything that promotes the practice of these virtues is a means for imparting religious education and the best way to do this in my opinion, is for the teachers rigorously to practise these virtues in their own person. Their very association with the boys, whether on the playground or in the classroom, will then give the pupils a fine training in these fundamental virtues.

M. K. GANDHI

How shall Free and Compulsory Primary Education Succeed ?

ACHARYA DINANATH
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PRIME MINISTER Smt. Indira Gandhi had made the following statement on Teachers' Day in 1977 which continues to be true even to this day :

> My father taught me the biggest thing when he told me that one should learn from everything all the while. A man's mind is always open to learn and it grows constantly. The moment he stops learning, his mind also closes down Teachers must remember this. A good teacher tries always to help children grow their personality. Whether it is in the school or outside, a teacher must always have the desire to learn and teach.

The Problem of Illiteracy

One of the complex problems facing our nation is the problem of illiteracy. The Government of India has been spending large sums of money on spreading literacy and removing illiteracy But the number of illiterates is on the increase constantly. Is this not a challenge ? The constitution of India provides for compulsory and free education up to the age of 14. The achievement of this target is very distant By 30 September 1978, the number of children in the schools was 865 lakhs while 445 lakhs were still outside their four walls. A survey conducted in this regard has revealed that the children outside school belong to scheduled castes and backward communities. They are mostly daily-wagers or farm assistants It is quite revealing that while the percentage of literacy is going up, the number of illiterates is on the increase. In 1952 the abult literacy rate was 19.26 per cent which increased to 34.08 in 1971. As against this, the number of illiterates in these two decades (1951-1971) went up from 1738 lakhs to 2085 lakhs leaving the numbers below 34 years of age where efforts are being made to remove illiteracy. The unfortunate fact is that the illiterates are increasing by 18 lakhs per annum.

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Free Uniform

The government has planned to give dresses to the children of the poor and scheduled castes and tribes. According to the fourth educational survey, out of the total 4,74,636 primary school children of 58,960 schools received free uniforms It was a common complaint that the uniforms meant for the poor children from scheduled castes and tribes were not given to them Also, these children even after having free mid-day meals do not read.

The Importance of Non-Formal Education

The question, therefore, is . Even after all these provisions why is compulsory and free education not successful ? Why is illiteracy on the increase. The reason is that many villagers feel that the child should instead of going to school help family raise its income. The regulations regarding free and compulsory education have not manifestly succeeded thus far. Hence, while looking out for alternatives the non-formal system should be given due importance

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The New Primary Teacher

The new primary teacher is expected to call on villagers when they come back from work in the fields He should earn their confidence Everybody loves to listen to stories He may tell historical tales for creating interest and while doing this he could incidentally increase the knowledge of the students in geography and general science. He may not use any book or pen in this work. In the villages people listen to radio and love to watch TV programmes. The radio may carry informative stories in their programmes and alphabets and numbers could easily be taught through TV. The problem of illiteracy could be resolved to a great extent by this technique. The administration should see that besides these things, teachers must also be paid well. We believe that in place of the provision of free dress, books and stationery, etc., besides mid-day meals, if the primary teacher could be fully motivated to undertake non-formal education programmes. The expenses in the latter would prove to be highly rewarding, indeed. □

The Role of the Primary School Teacher

N A. MODH
Beat Inspector
Dhanera Distt , Banaskantha, Gujarat

NEW EXPERIMENTS and new ideas are a rage in teaching these days. Teachers regard child-centred teaching their duty. Children, teachers and society cannot be separated easily. Today's children are tomorrow's teachers They make society. Teachers and society must be very careful in providing for the teaching of the children

Majority of our people live in villages and long after independence they are still illiterate. The farmers and the labour are busy doing their work They are not worried about the education of their children They believe if they can do their jobs well without any education, it would be no surprise if their children followed suit Instead of hiring hands they prefer to employ their own children on farm and field jobs

In my area children do not visit schools Migrant labour has naturally

never thought of sending their children to schools. They are constantly on the move and find it difficult to send their wards to schools. After independence several changes have taken place in our educational system. The Government of India have done a lot for the upliftment of our people. They have tried to improve the housing facilities for the people besides providing them with economic means to better their lot. The Kothari Commission followed Mudaliar Commission. Researches have indicated that there is need for proper pronunciations. Children take time to pronounce certain sounds like sh /ch. and vowels and diphthongs. A teacher is likely to take lot of time in correcting them and encouraging them to speak properly. If the children are committing mistakes out of sheer negligence or habit a patient correction is called for.

Similarly if the teacher reads passages and poems loudly and in an appropriate manner, children would be impressed and, therefore, imitate. This means teachers should be very careful on this score. A teacher should not lose his patience even when a child commits mistakes repeatedly. In place of anger and its expression he must motivate them sympathetically. Needless to repeat children drop out of schools and remain illiterates for ever because a teacher had somewhere sometime lost his patience and given expressions to his frustrations.

Curiosity

In reality teaching of children has its very bases in curiosity. The extent and degree of a child's curiosity could be manipulated to teach him in the same proportion It is normally observed that a strong curiosity on the part of the students is not respected by parents and teachers In fact they are reprimanded for it This is very unfortunate. Not only must the elders satisfy their curiosity, they should keep it aflame as well For this they must create conditions so that children may show their willingness to learn by being inquisitive.

For learning new knowledge the best method known thus far is of question-answer. No one can digest food unless someone is hungry. Curiosity is the hunger for new knowledge and by whose awakening can a teacher teach new knowledge. If no food is forthcoming while one is hungry, or it is not served well no one can feel happy about it. If a person while serving meals picks up a quarrel one would neither relish the food nor would it be digested easily. The same holds true in the case of teaching. Therefore, the teacher should serve well and tastefully without any rancour when he comes to know that his students are hungry for new knowledge. □

Let's Draw Figures from Doodling

SWADESH SHARMA
State Council of Educational Research and Training, Gurgaon

ART IS DEDICATION of life. It enriches life and makes life interesting When we say life is art it means our everyday behaviour should reflect art and one should be able to live tastefully.

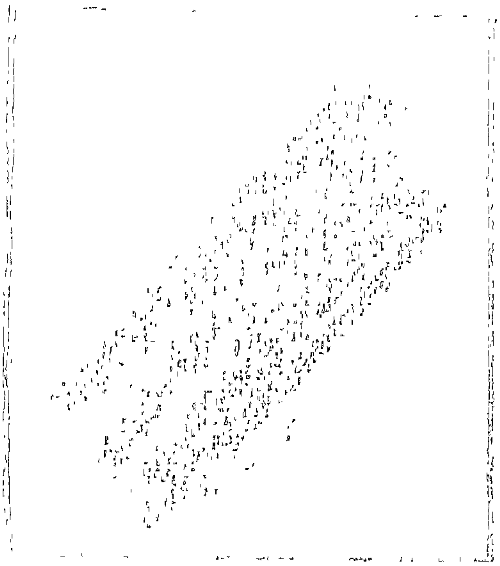
Art is not the property of any class. It is meant for the good of mankind. It is, therefore, necessary to develop it in such a manner that even an ordinary person should be able to appreciate it and develop himself. Art is not merely for decoration it is something to experience. One can experience art by creativity. One can experience art from the early stages of one's life because by the time a child crosses the line of adolescence, he has lost his powers of creativity. It is a matter of regret that our teaching institutions do not have a kind of creative atmosphere. In order to get over this deficiency art-teaching should be so planned that a child may be able to inculcate a sense of art in a proper manner.

The art of a child is his way to the development of an independent personality. Art draws out the child whether as individualist, artist or in the form of doodling. A child draws lines so that he may be able to present his inner world to an outside viewer sympathetically and also be able to express himself.

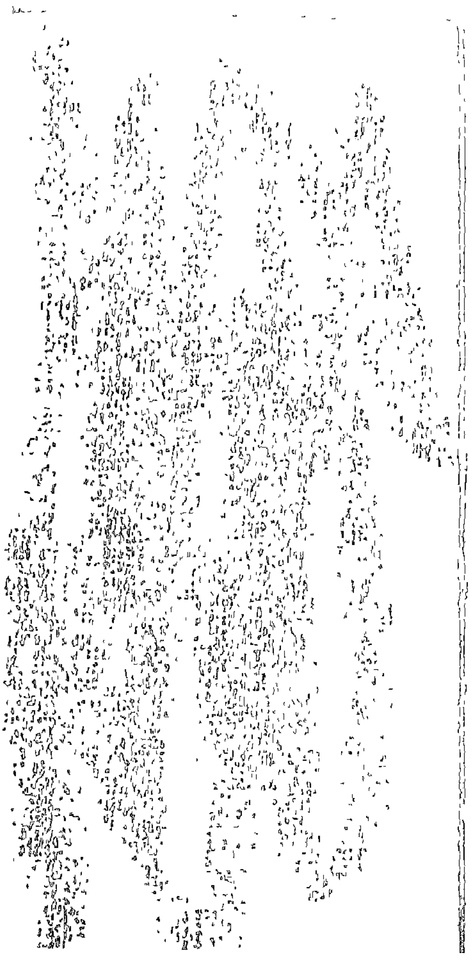
This doodling is the beginning of art-teaching. The random lines constitute educational units. Whenever we give a child a coloured chalk, pencil, brush and colour, paper or slate, etc. his first response would be to draw like the following :

CIRCULAR

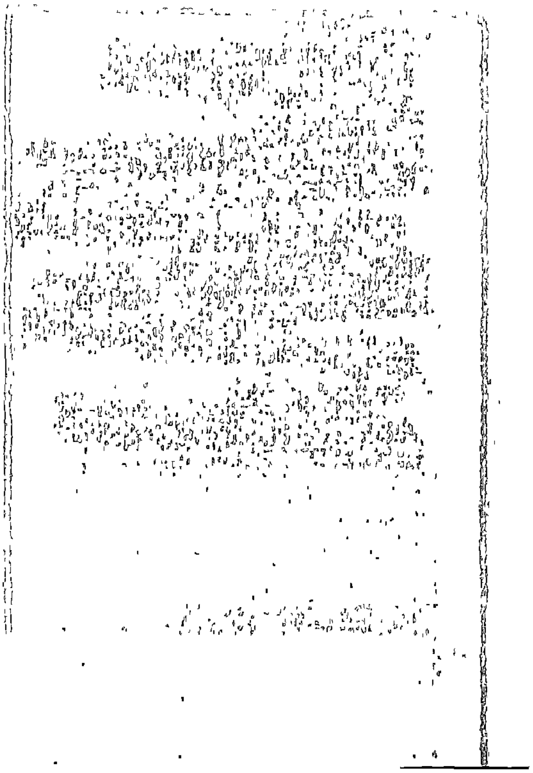
DIAGONAL (a)



VERTICAL

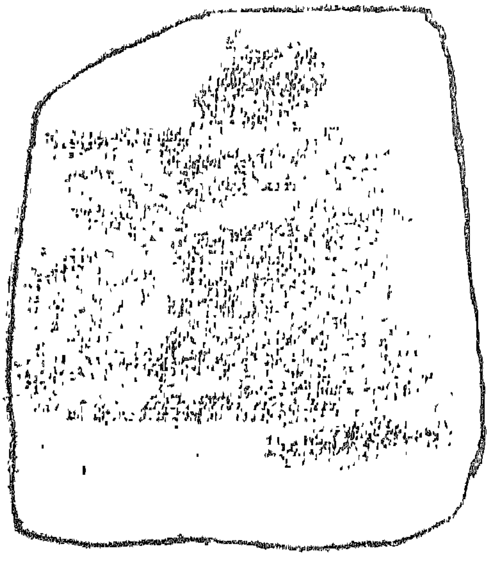


HORIZONTAL



DIAGONAL (b)

TRIANGULAR



These random lines produce thrill in the child. He enjoys it. The first art experience of the child has several educational implications. For example:

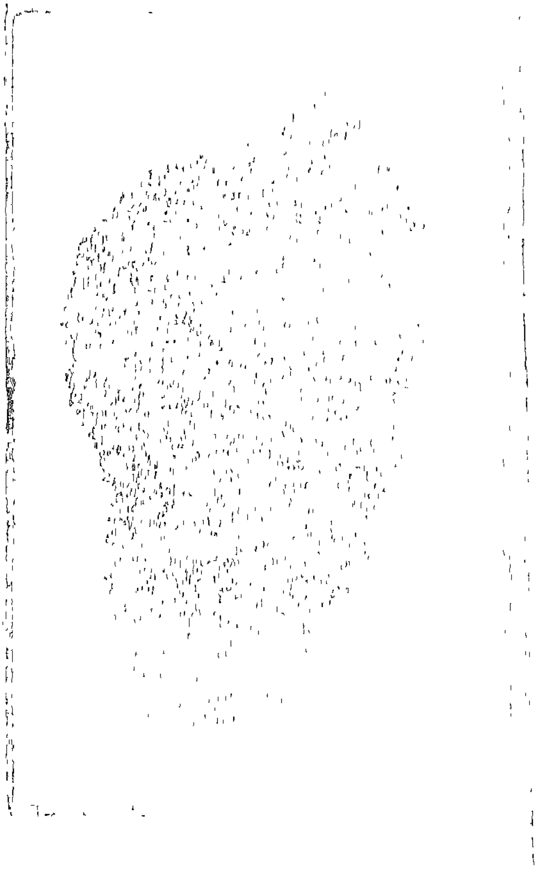
1. The child is acquainted with the new objects.
2. He learns to hold these things in his own manner. He loves to repeat his first experience of art. He learns to hold objects properly. He can balance his hand and turn his hand properly or, what one may like to call 'controlled scribbling', viz. : circular, diagonal (a), vertical, horizontal, diagonal (b) and triangular.

Educational Units

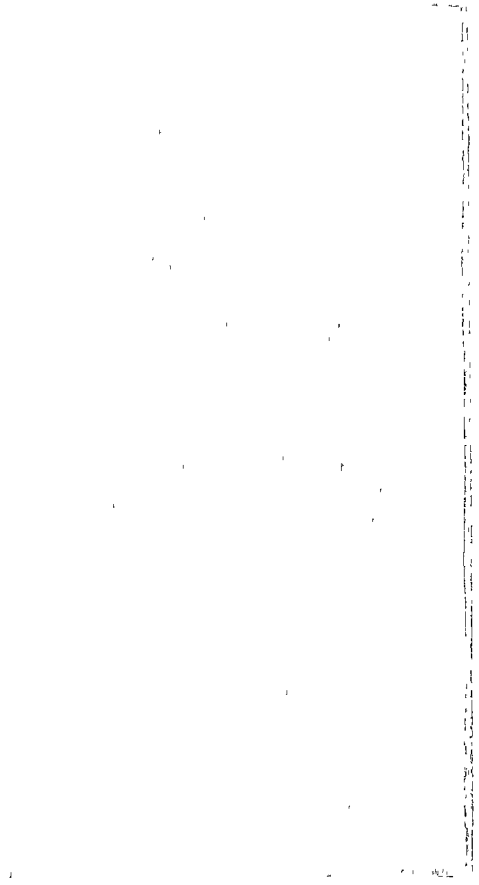
With the help of the educational units or the art-experiences children in the primary stages can be taught to draw the outlines of vegetables, flowers, animals, birds and human beings The advantage of teaching art like this is that one does not have to learn art through its time-worn method of forms and steps. The child can go ahead by overlooking his mistake in drawing forms and outlines Indeed, he is least bothered about what he has drawn or what he is drawing. He enjoys drawing any figure or line whatever. This doodling has been divided into the following educational units · (*i*) Parrot, (*ii*) Mango, and (*iii*) Human figure.

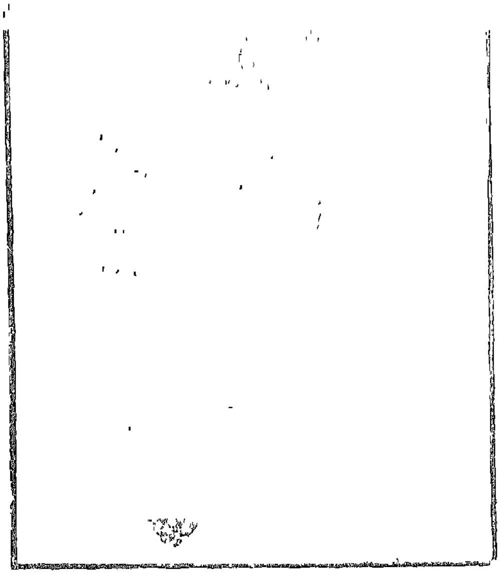
1 Parrot

2 Mango

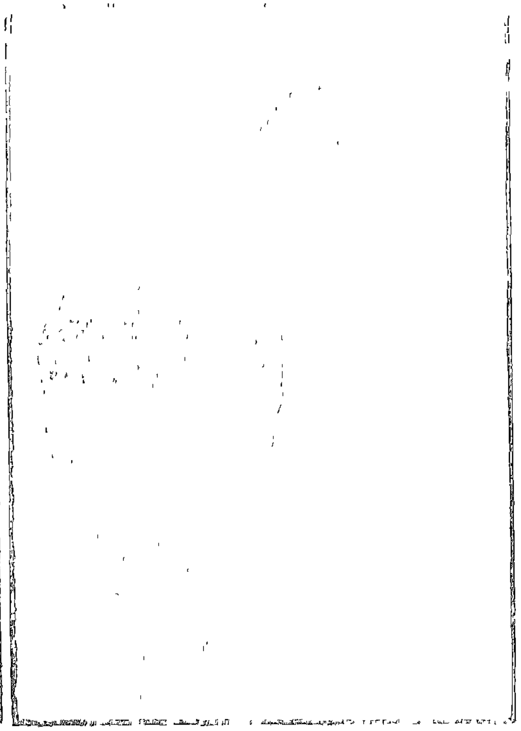


3. Human figure





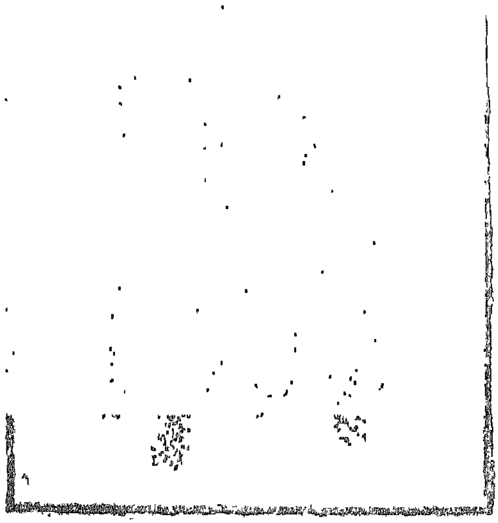
The mango drawn above can be taught to Class V



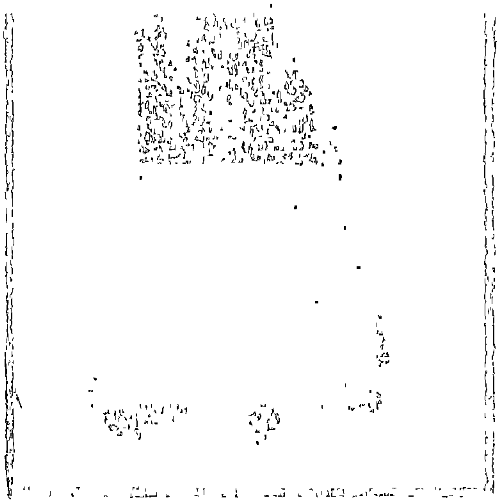
The mango drawn above can be taught to Class IV

This mango can be taught to class four and five and drawn in different colours, as shown above. Similarly, teachers can also guide their pupils in drawing human figures (see step I to VI) as shown in the following pages.

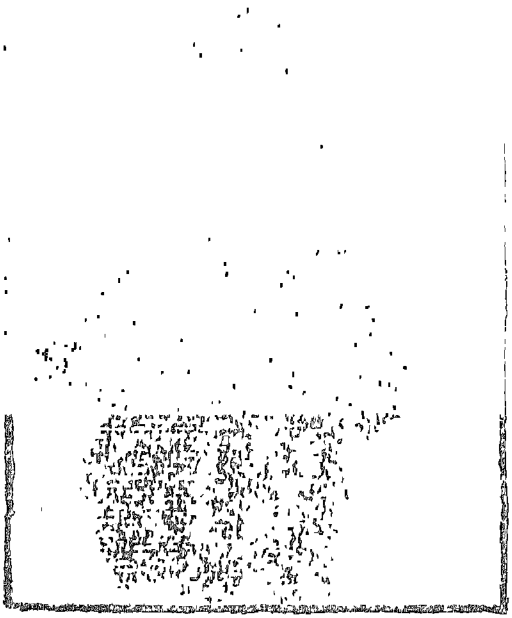
[The figures shown here can be drawn in different suitable colours Due to some technical limitations these figures are not produced here in different colours *G.E.*]



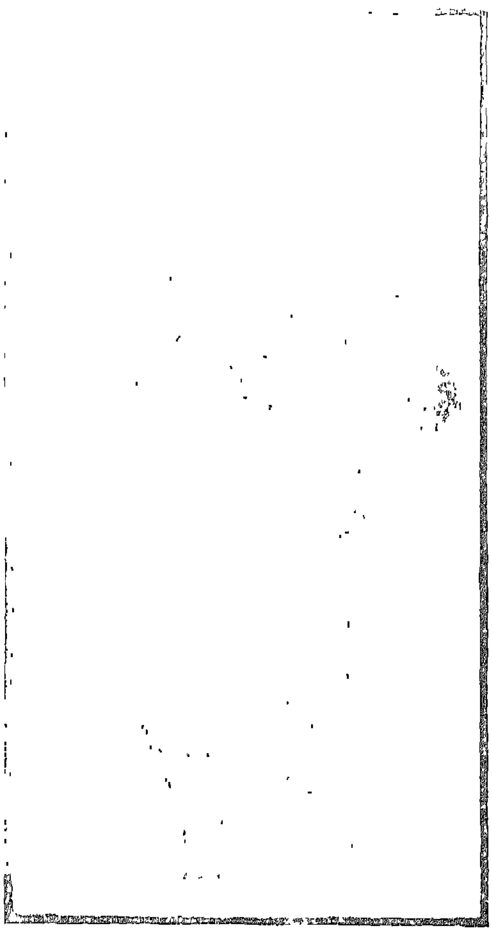
STEP I



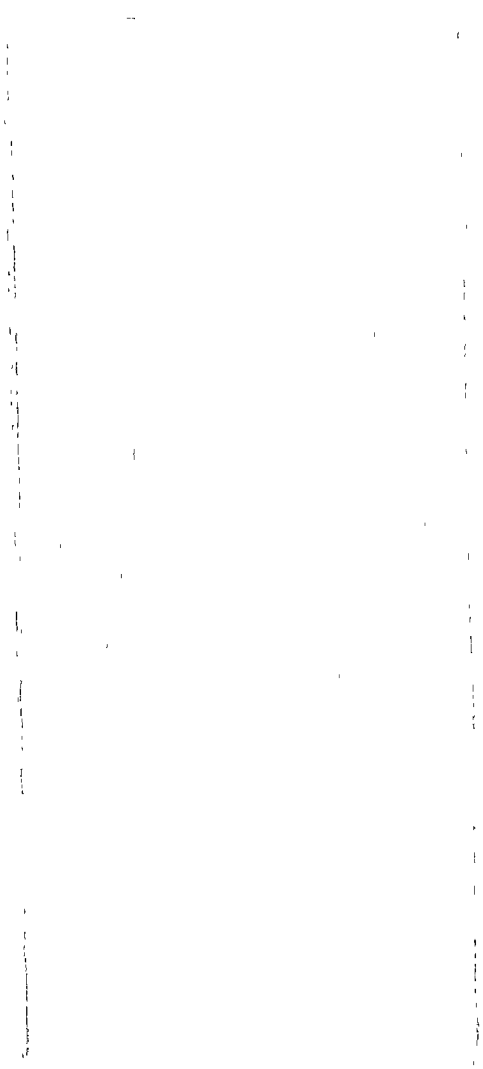
STEP II



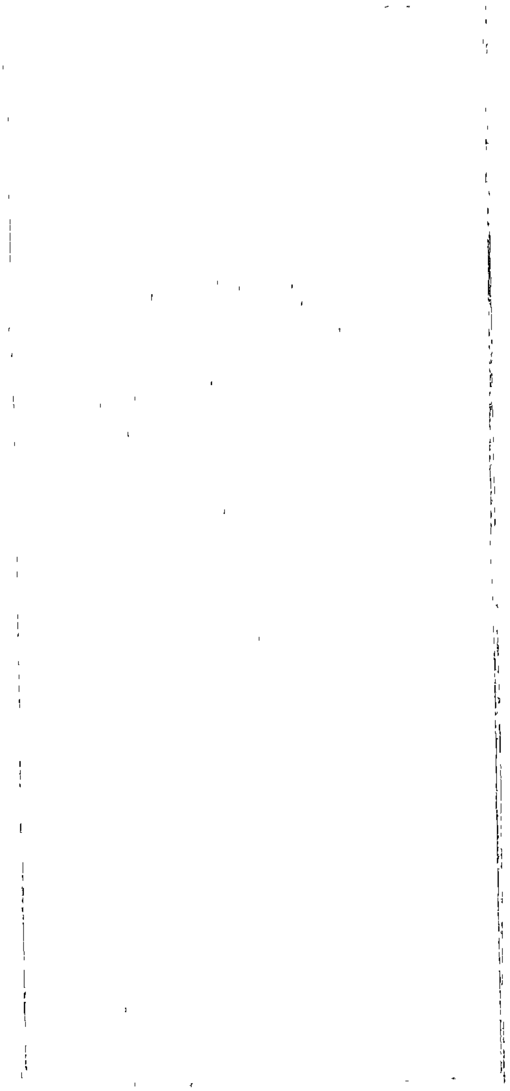
STEP III



STEP IV



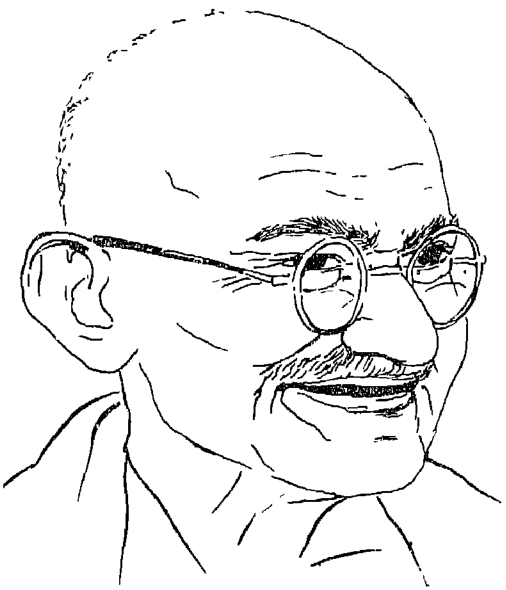
STEP V



STEP VI

Mark the steps a primary school teacher would pursue while teaching the aforesaid figures.

The other advantage of teaching figures through doodling is that any ordinary primary school teacher can be trained to teach it. Even without an art teacher this teacher could take art classes. □



Gandhiji on Education

There seems to be no doubt that in the public schools the books used, especially for children, are for the most part useless when they are not harmful That many of them are cleverly written cannot be denied. They might even be the best for the people and the environment for which they are written. But they are not written for Indian boys and girls, not for the Indian environment. When they are so written, they are generally undigested imitations hardly answering the wants of the scholars. In this country, wants vary according to the provinces and the classes of children. For instance, wants of Harijan children are, in the beginning stages at least, different from those of the others. I have, therefore, come to the conclusion that books are required more for the teachers than for the taught. And every teacher, if he is to do full justice to his pupils, will have to prepare the daily lesson from the material available to him. This too, he will have to suit to the special requirements of his class.

Real education has to draw out the best from the boys and girls to be educated. This can never be done by packing ill-assorted and unwanted information into the heads of the pupils. It becomes a dead weight crushing all originality in them and turning then into mere automata. If we were not ourselves victims of the system, we would long ago have realized the mischief wrought by the modern method of giving mass education, especially in a case like India's

Attempts have undoubtedly been made by many institutions to produce their own textbooks with more or less success. But in my opinion they do not answer the vital needs of the country. I lay no claim on originality for the views I have endeavoured to set forth here. They are repeated here for the benefit of the managers and teachers of Harijan schools, who have a tremendous task before them They dare not be satisfied with mere mechanical work resulting in simply making the children under their charge indifferently and in a parrot-like manner learn the books chosen anyhow. They have undertaken a great trust which they must discharge courageously, intelligently and honestly.

The task is difficult enough but not so difficult as one would imagine, provided the teacher or the manager puts his whole heart into the work If he becomes a parent to his pupils, he will instinctively know what they need and set about giving into them. If he has it not to give he will proceed to qualify himself. And seeing that we have started with the idea that the boys and girls have to have instruction in accordance with their wants, no extraordinary cleverness or possession of external knowledge is required in a teacher of Harijan and, for that matter, any other children.

And when it is remembered that the primary aim of all education is, or should be, the moulding of the character of pupils, a teacher who has a character to keep need not lose heart.

Harijan, 1-12-1933

I am quite clear that you must not inflict corporal or other punishment on your children or pupils. You can punish yourself, if you like and are qualified, in order to melt your children's or pupils' hearts. Many mothers are known to have corrected their children in this manner I have on many occasions. I had to deal with wild boys in South Africa, Muslims, Christians, Hindus and Parsis. With one exception, I do not remember ever having punished a single boy The non-violent method invariably succeeded. When a bond is established between a teacher and his pupils, the latter will generally yield before their teachers' suffering for their sake. In the case of your 'bully' if he has no respect for you, you can non-cooperate with him by sending him away from your school. Non-violence does not compel you to keep in your school a student who does not carry out disciplinary rules

Harijan, 13-7-1940

Premchand on Education

"The principal requirement for any reform of our primary educational system", he wrote, "is that of competent teachers. Government has entrusted the job to teachers who do not get more than four or five rupees a month. How can one who is not free from material worries be inclined towards devoting attention to his work ? Worse still is the condition of teachers in the aided schools where teachers get only three rupees and fifteen annas (after the deduction of the money order fee of one anna). The teachers' wages are half of those of the water-carrier in towns or even that of a manual labourer. The teacher, therefore, either turns towards cultivation or extorts higher fees on the sly, resulting in a reduction of the number of students The teacher is also overworked and cannot give adequate attention to all the students. When the parents find that their wards are not getting proper education, they withdraw them from the school". Added Premchand : "Teachers trained in normal schools too find themselves out of place; for they had been taught to teach one class only, whereas in the village school they teach four." "How can we get that breadth of vision and that catholicity of mind, so indispensable to literary workers, if we don't associate ourselves with the authors of other languages, cultivate their friendship, seek light on literary problems, exchange ideas and compare notes ? We in India have not tried to fraternise with writers of other Indian languages...as they do in Europe where they hold international literary conferences, discuss all possible subjects having a bearing on literature, Urdu, undoubtedly, has cultural associations, and it is only through coming into contact with the writers of that language that we realise our own weaknesses. Urdu writers are more social and sympathetic .. Jainendra was in Lahore recently, addressed several meetings and organised a Hindustani Sabha there. He is full of enthusiasm and has become one of their admirers. Our politicans cannot be broad-minded...They are a hopeless lot. We have to bridge the gulf beween Hindi and Urdu writers. The writers will have to give a lead, and they can do so only by becoming friends, rather than as opponents... "The Hindustani Sabha, as set up, will hold fortnightly meetings on literary and philological problems. In a mixed audience, a speaker has to curb his tendency to be high fault in so as to be understood. If we could arrange such Sabhas in all the important cultural centres, we would broaden the present narrow and exclusive outlook that we have Our literature would then be richer and fuller This is the only solution to the problem of *Lingua franca* provincialism is a new menace and we have to be on our guard If you could organise a Hindi-Bengali or a Hindustani Sabha in Calcutta and bring together the Urdu, Hindi and Bengali writers occasionally, it would be useful".

Munshi Premchand A Literary
Biography by Madan Gopal,
Asia Publishing House, Bombay, 1964

TEACHERS WRITE

Science Teaching through Local Environment

I WAS TOUCHED to find primary school children so quiet and involved in a certain science class. Being too curious, I stepped into the classroom to see for myself as to what was going on there. My eyes fell on the aids lying on the teacher's table and the drawing on the black-board which were quite impressive. The teacher was engrossed in motivating the students to make maximum use of the materials around them in their homes, in the courtyard, lane or neighbourhood and relate it to their lessons in accordance with their own understanding and discriminative faculty. Seeing me in his class the teacher said: "I teach my students science in this way and they learn with great interest. See these leaves, they are hibiscus leaves, this is the stem, these are the roots—this is the primary root and these are the secondary roots .. Today I have taught my students the part of a plant, which they have learnt with great interest".

"Which class is this ?"

"Fourth"

"Which other classes do you teach ? "

"Third and fifth"

"Do you teach all classes in the same way ?"

"Yes, actually, I am myself interested in science, and while teaching my students, I also learn something new when I tell my students about these discoveries of mine, their eagerness to learn also increases, which in turn encourages me further in my task"

"Do you teach all the science chapters, all the science topics in this manner ?"

"Yes, I generally take examples from my surroundings, and use other easily available materials to help my teaching. I teach my students about the plant kingdom and physical and natural phenomena with simple examples and succeed in satisfying their curiosity for scientific knowledge.

"We get very good examples, in nature, to teach about clouds, thunder lightening, rainbow, rain, forms of water, light and heavy water, sun, moon, solar system, solar eclipse, lunar eclipse, etc. These examples not only have a lasting impression on the students' mind, but also make them more and more enthusiastic to learn about the mysteries of nature. In fact knowledge of science and scientific understanding helps chidren do away with all kinds of blind faith and makes them fit enough for a modern type of social life".

> "Do you experience any difficulties while teaching subjects like chemistry and biology ?"

"No, there is no difficulty Nor have I ever thought about it My usual procedure is to prepare myself mentally about the needed aids well before the class starts. Thus, I set my mind preparatory towards class-work. The science kit available in the school is maximally used in relation to the other locally available materials and environment In this way I always attempt to teach science books in the context of local surroundings and thus the students enjoy all learning The students take keen interest in learning through aids and when they properly use aids in learning through playway I feel amply rewarded. I taught my students about the solar system right in the playground. I hammered a wooden peg in the ground, and drew a number of equidistant circles with the help of a string around it. Assuming each path to be that of a planet, I gave each student its name. I then asked them to run along their own paths. They did not come in each other's way In this way I explained to them how the planets in the solar system move about their paths Similarly I kept an old earthen pot upside down on the table and explained that the earth is round. Then, I placed a burning candle on the table The portion of the pot getting light represented that side of the earth where it is day and the other night.

To explain how the sun's heat reaches the earth, the distance between the sun and the earth is considered very important. This was made clear by using fire as an example. In winter we sit around fire to keep ourselves warm. If we move away from it, we feel cold We do not feel the heat of the stars, because they are very far from the earth.

Village children have daily contact with fields and barns, playgrounds, rivers and drains, and plants and vegetables. They see how the gushing rain-water and drainages erode the soil and take away with them 'humus', the fertile element on the soil. This effects the soil fertility This fact can be shown to the students by first pouring water on smooth and even soil and then on a grassy patch or beds made in the shape of steps. The upper fertile layer of the smooth soil is carried away by water while the grassy plot is least affected.

Air pressure, work and energy, light, sound and magnetism, etc. can also be explained with the help of ordinary materials and illustrations. Air has weight can be explained by blowing up a balloon A cycle tyre's tube is a simple example to show that air occupies space. To show that oxygen helps in burning, place a burning candle under a glass tumbler. It will extinguish The fact that expansion takes place due to heat can be explained with the help of metal ring cart-wheel. These are a few illustrative examples from the surroundings which the children experience everyday. They accept them to be scientific truths when the teacher supports them in their learning and discoveries".

Thus, besides firmness and confidence on the part of the teacher, the basic fact remains that science constitutes a comprehensive and proper use of local conditions and environmental materials in its teaching Presentation of scientific facts in this way interests the students and they understand and learn easily. Also close observation makes a teacher resourceful, and selecting resource material from the environment is the fundamental basis of science. Every teacher should understand and accept this so that he can do justice to his students and satisfy their curiosity.

CHUNNILAL SALUJA
Primary Teacher
M V M Chowk No 1
Shivpuri (M P.)

A New Technique for Teaching Arithmetic

A TEACHER should try to know his students' mind. From time to time educationists have evolved new methods of teaching which have proved a great help. At times new systems take birth because of the unexpected expressions from the mouth of children. A teacher should remember this as well. This may be a small matter but it has a revolutionary potential.

Every teacher must have faced a problem while teaching alphabets. Children mispronounce them very frequently. They take time to spell correctly. If a teacher is careful he can do this job in half the time he normally would otherwise take. Mixed sounds are another problem. But they are all amenable to solution.

Similarly, there are ways of helping a child learn numbers and tables. I recall an incident which took place sometime back. I was trying to teach a child how to add. I wrote down on his slate 1, 2, 3 and asked him to add. He did not take cognizance of 1 but multiplied 2 by three. When I asked the answer to the query, he replied : 'six'. I asked him further about his method of arriving at this answer. He told me simply that he had multiplied two by three. I literally got furious but somehow controlled it and wanted to ask again why should he have multiplied when he was required to add. As the answer was correct I could not say anything. It suddenly struck me that if numbers are written in a serial order one could multiply a number to get the total of these figures. I started working on this hypothesis. I was surprised to learn that the answer was invariably correct. I reproduce a few of findings ·

1 If the number are written in a serial order and they are only three, a multiplication of the middle number by the total of the serial would result in the total of these three .
$1, 2, 3=2\times 3=6$
$2, 3, 4=3\times 3=9$
$11, 12, 13=12\times 3=36$

2. If four numbers are written serially the equation would be as follows :
$2, 3, 4, 5=4\times 3+2=14$
$20, 21, 22, 23=22\times 3+20=86$
Which means multiply the third and add the result by the first number.

3. If one has five numbers in a serial order one may multiply the third by four and add the first number :
$4, 5, 6, 7, 8=6\times 4+6=30$
$10, 11, 12, 13, 14=12\times 4+12=60$
[In fact one could as well multiply the middle number by the total of the serial numbers as such. This is true in the case of all odd numbers such as 3, 5, 7, 9, etc.
$4, 5, 6, 7, 8=6\times 5=30$
$10, 11, 12, 13, 14=12\times 5=60$
$2, 3, 4, 5, 6, 7, 8=7\times 5=35$
This is much easier —*General Editor*]

4. If the total numbers are six, one should multiply the fourth by six and subtract 3 :
$2, 3, 4, 5, 6, 7=5\times 6-3=27$
$9, 10, 11, 12, 13, 14=12\times 6-3=69$

5. If these numbers are seven the total of these numbers would be equal to multiplication of the fourth by six and addition of the fourth.
$2, 3, 4, 5, 6, 7, 8=5\times 6+5=35$
$7, 8, 9, 10, 11, 12, 13=10\times 6+10$
$=70$

One is surprised at the formula which I could evolve because of a simple remark by a child I hope teachers would not hesitate giving back to children what belongs to them. Also, they would keep up with the creation of new methods.

GHANSHYAM SARAN SRIVASTAVA
Village and P.O. Pirouna
Jalon (U.P)

Queries of Students on the Life of a Tree

Every child has inquisitiveness. Almost all childern are ignorant but they have a curiosity to learn new things. They are able to grasp the subject if they are taught through dialogue and perception.

Pupil : Sir, you say the tree has life like we have – how can it be known ?

Teacher : After germination of seed, the plant begins to grow day by day.

P : Does the tree grow like human being ?

T : Yes, the human being has to cross some stages infancy, adolescence, young and old age. The tree grows bigger gradually and dies at maturity.

P : Does the tree have respiratory system ?

T : Yes, of course. As we breathe, the tree also breathes. But the tree during day releases oxygen while at night it leaves carbondioxide.

P : Does the tree sleep ?

T : The tree also sleeps as we do.

P : How can we feel it ?

T . There are some trees who close up their leaves at night but re-open the same at dawn with the rays of the rising sun.

P : We take our food by our mouth but how does the tree eat ?

T : The tree has mouth also to take its food The roots of the tree function as mouth.

P : We can take hard food but how can the tree take ?

T : The tree never takes hard food The baby only drinks milk as he has no teeth to chew Like the baby the tree takes liquid substances from the soil with the help of its roots. When water is poured, the substance is melted and the tree sucks this substance

P : How can the tree stand ?

T : We can stand with the help of our legs and feet. But the roots of the tree act as its legs and feet and clasp soil with its roots firmly

P . We take cooked meal, does the tree also eat cooked meal ?

T : The tree takes cooked food too.

P : Sir, how does this happen ?

T : We require fire to cook our meal. We get this fire from oven. Similarly, the tree gets it from sunshine and with the rays of the sun

P When the tree has life, it surely dies too ? How does it die ?

T The tree meets death like us. Some trees are short lived. On bearing fruits they die automatically or naturally. Some trees are long-lived they live through the centuries.

Now we came to know how a tree grows and lives on earth. This has similarity with the human beings to some extent. But their process of taking food is different from us. On the whole the living creature has growth and death So the tree has life no doubt.

P : Thank you, sir.

BIRENDER NATH BASU
Headmaster, H A Primary School
Birnagar, Distt Nadia, West Bengal

Modern Evaluation Technique

MODERN examination system is of special consequence in the present day educational organization It seeks to measure and evaluate organization and students' progress In fact, this system has been in vogue since times immemorial. In ancient times, whenever a pupil sought admission to an institution to receive education, he would be tested for his previous knowledge and only after qualifying the entrance examination, he could be admitted A student desirous of first admission would be evaluated for his mental condition on almost the same standard as we do today through a kind of group admission tests. There is, therefore, nothing new in this.

A number of systems have been used from time to time in order to know student's mental and educational conditions and capabilities. Of these, the most popular examination and evaluation techniques are known in forms or categories like the following

1. A. Internal Examinations
   B. External Examinations.
2. A. Weekly Tests
   B Monthly Tests.
   C. Annual Examinations.
3. A Theory Examinations
   B. Practical Tests.
4. A. Oral Tests
   B. Written Tests

Demerits of the Modern Examination System

About the demerits of the present-day examination system, Dr Zakir Hussain wrote · The prevalent examination system in our country has proved to be a curse. Our examination system has worsened our educational system because it has received much more emphasis than it deserves. In so far as evaluation of student activities is concerned, the general conclusion is that modern examination system is completely inadequate and unreliable. The following are some of the demerits of today's examination system :

- —It considers passing examination as the major aim of education and as such has become an end in itself. It is no longer a means to education
- – It over-emphasizes rote learning.
- —It contributes especially to the lowering of moral standard of teachers as well as students. Students use unfair means to get through the examination
- —It measures simply bookish knowledge of the students
- —It does not evaluate all aspects of students.
- —It makes students and teachers work very hard which tells upon their health and sometimes creates mental imbalance as well
- —It is not reliable as two different examiners would award different marks to the same answer.
- – It does not evaluate true knowledge of the students.

However, the fact remains that despite many defects, we are never disappointed. Today's examination as it is, is useful to a great extent. May be, some defects have crept in it from time to time and the educationists are making their efforts to rectify its defects. The following are some of the suggestions made by experts to improve upon the existing examination system :

- —External examination be minimized and internal assessment and records be made the basis of all classification of students
- —The type of questions be modified, i. e. examination should not be merely essay-type.
- – Oral examination should supplement the written ones to conduct comprehensive evaluation.
- –Test questions be framed in the light of the total curriculum and courses.
- —Examiners need also to be selected carefully. Only those who teach a particular subject be made its examiners. Teachers with atleast five years' experience be made examiners.
- –There should be a proper relationship between education and examination which should be considered as essential links of the same chain.
- —The standard of selecting questions need to be made clean and objective to every teacher to help him frame proper questions in his subject as also to help every student answer them. That is, the questions ought to be simple, short and clear. Complicated questions need to be excluded.
- —The questions should aim at evaluating all relevant content knowledge

Characteristics of an Ideal Examination

It is in fact a difficult problem to suggest what makes the best kind of examination. Yet, on the basis of what has been stated above, it becomes almost obvious that an ideal examination should have :

- —*Reliability :* It should ward off the possibility of variation in marks obtained by students for similar or same answers.
- —*Validity :* It always measures what it seeks to measure.
- –*Objectivity :* It is not influenced by interests, values and attitudes of examiners.
- — *Comprehensiveness :* It evaluates the entire curriculum and courses.
- —*Utility :* It is the most useful evaluation of a particular subject.

- *Administrabllity :* It is easy to be administered. It is advisable not to use difficult and complicated type of examination as it seeks to defeat its very purpose of evaluating the students.
- *Limited Applicability .* It should be delimited to the organizational capacity of an institution. This is contrary to what is being done now in which there is no limit whatsoever.

It may now be proper to explain the term 'evaluation'. It has not been taken to mean the same thing according to different opinions now available. Clark and Star define it as "Evaluation is that decision or analysis which is derived on the basis of student's knowledge in a particular subject". K. Kshatriya puts it thus : "Through Evaluation is achieved a complete understanding of any aim, action or word". For example, it is most essential for a language teacher to know the progress made by his students in learning a language and this is done quite easily through evaluation. In short, to know how far particular aims of an educational programme have been achieved is termed as evaluation.

Objectives of Evaluation

- Examine students in their complete action.
- Improve the existing examination system.
- Judge success and failure of educational techniques on the basis of knowledge of student's problems.
- Impart individual guidance to students.
- Collect relevant information for classifying students into different groups.

Objective Tests

Simple and short questions are asked from the students through these tests and they are required to answer these questions in a limited time. Being objective, these tests prove to be more reliable and effective. Teachers and examiners can award marks quickly and easily in these tests. Thus, besides saving time and labour, these tests give valid results. Objective type tests are also grouped into different categories. Here are a few illustrations which the teachers can use to frame their own teacher-made tests in their subjects :

1. Fill in the blank type tests such as
   (i) Ramayana was written by - . .
   (ii) . .. was written by Jaishankar Prasad
   (iii) A cow gives us sweet .
   (iv) Himalaya is situated in the ... . of . . . . ..

2 Fill in the blanks with adjectives

... .Saree.
....Cat.
The sky is.. .. . .
The rose is............... ..

3 Write the names of authors against their books .

Book	*Author*
Gaban	....
Saket	....
Ramayana	..

4 Write the names of places against monuments

Monument	*Place*
Rajendra Bridge	..
Jama Masjid	. ..
Golghar	. .
Tajmahal	.. ..

5 True and False type tests

Tick true (√) or false (×) against these statements ·

—Vidyapati is the most famous Hindi poet. ( )
—Gaban is the work of Munshi Premchand. ( )
—A cow gives rice. ( )
—Red Fort is in Delhi ( )
—Saint poet Kabirdas was a Brahmin ( )

6. Matching type tests :

Match the following two lists in their correct order ·

	Author	*Creation/Book*	*Answer*
(i)	Premchand	Ansoo	(i) . . ... .
(ii)	Goswami Tulsidas	Meghdoot	(ii) ... .
(iii)	Kalidas	Saket	(iii) .. . ...
(iv)	Jaishankar Prasad	Ramayana	(iv) . . ..
(v)	Maithili Sharan Gupt	Kaffan	(v) .. ..

GOSWAMI RAMBALAK
Gian Kunj, Dudhpura
Samastipur (Bihar)

NEWS AND VIEWS

When the Universe Poetry

To some 10,000 children in and around Compiegne, a small city 80 kilometres to the north of Paris, the heavens above are almost as familiar as the world at their feet, reports Daniel Behrman in *Unesco Features* This is because of Rina Singer who, for the past four years, has been putting on astronomy shows for schools served by the Centre d'Animation Culturelle de Compiegne et du Valois. This young woman has a vocation she wants to initiate primary school children into the mysteries of the universe. To her, the universe is poetry and astronomy, she believes, is the key to understanding all the other sciences

Children More Imaginative

Recently, visitors had a chance to watch her at work at the Groupe Scolaire Georges Pompidou on the edge of Compiegne As is always the case, her show had been requested by a teacher. Bernard Minot had prepared his pupils during four hours a week for four weeks before Miss Singer arrived with her charts, transparencies, teaching apparatus and enthusiasm.

The class was quick, When she asked. "Where are we ?", hands shot up and a small blond boy replied: "On earth." When children are not so quick, they might reply : "In the classroom", an answer that occasionally comes from parents attending Miss Singer's astronomy shows in the evening She has found that primary school children are much more likely to use their imagination than adults or even older children in secondary school.

They have to be with Miss Singer. She makes a point of always getting the children to supply the answers to the questions she fires at them. "And where are the stars ?" she asked. "Everywhere!" said a girl. "Everywhere?" repeated Miss Singer, looking at her shoes. "In the sky!" at least half-a-dozen children chorused

That enabled her to lead the class from the earth out through the atmosphere to the concept of space, the emptiness that surrounds things, and to the universe which contains everything. She and the class were now in a spontaneous dialogue.

Astronomical Numbers

Once she had put across the idea that the sun was a ball of fire, she held up a chart covered with two clusters of dots. The children tried to guess the number in the smaller group of 100 dots and came fairly close; nearly all hit on 1,000 as the number in the bigger group.

This enabled Miss Singer to go on to he idea of a million as a thousand housands; then 50 million as the population of France; 4,000 million is the population of the earth; and next to the idea of astronomical numbers; the 150 million kilometres between us and the sun, the 38,000 million to the nearest star.

The children followed her as she ran down the scale of size.

"What is the smallest thing you know?" she asked A microbe a virus a speck of dust. Even smaller, is the atom, said Miss Singer. "Atoms are dangerous," a child said. "Of course not, you're made of atoms!"

She began with the simplest atom, hydrogen, which has only one electron in orbit around its nucleus. She held up a short stick there were a million million million atoms in that piece of wood, the number of grains of sand in all the oceans. "But we have many times more atoms than that in our bodies," said a child.

Then, starting with a cloud of hydrogen atoms in a nebula she related the birth of a star There was motion in the cloud, each atom exerting its force of attraction. When the atoms met, they liberated energy and the result was light and heat. She told the children to press their fingers hard on their desks, then bring them up to their faces.

"It's hot!" said a girl.

Miss Singer spoke of how stars exploded and showed a transparency of the Crab nebula formed when a star blew up 1,000 years ago "But they had no cameras 1,000 years ago", a child interrupted and obliged Miss Singer to explain the speed of light and the concept of light years.

The birth of the solar system brought everyone back to the dimensions of the sun and its planets. With a planetarium model, she was able to show a little boy how the sun is brought into eclipse when the moon moves between the earth and the sun.

Then the transparencies flashed on to the screen: shooting stars, the surface of the moon, "earth shine" seen by astronauts from the moon, the planets and their satellites. Miss

Singer talked not only of the dimensions of our own galaxy but of the notion of galaxy clusters before she had to stop with a promise to take up all the other questions in another show later in the year.

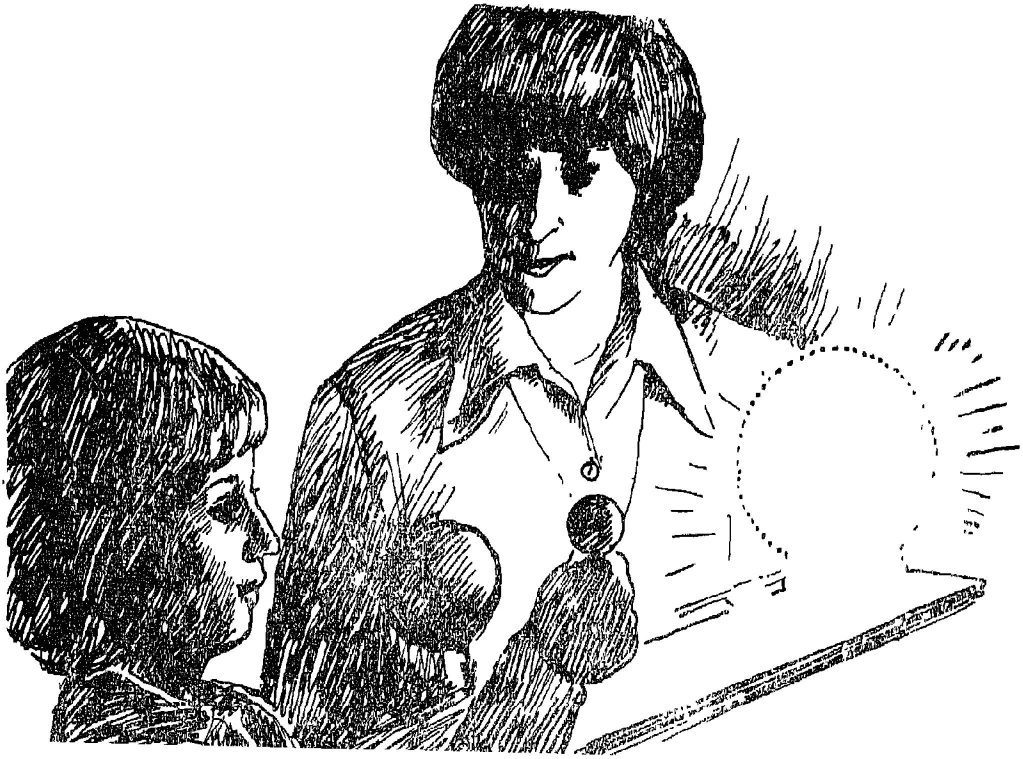
At the end of the show, she was exhausted. She admitted that she had been working as hard as the class, one of the brightest she had ever seen.

Singing the Cosmos

Miss Singer came to popularizing science from the performing arts. Born of Hungarian origin in Romania, she had moved to Israel with her family at an early age and studied there, later working as a teacher of English. Then seven years ago, she decided to drop everything and become a Singer.

To learn her new profession, she thought she had to go to France, the land of Edith Piaf and Georges Brassens In France, she read a popular book on astronomy, *Red Giants and White Dwarfs* by Robert Jastrow, Director of the Institute of Space Studies at NASA in the United States.

That gave her new determination. She had always wanted to sing; now she wanted to sing about the cosmos. She came to Paris where she performed in a cafe-theatre One of her bosses there was Genevieve Bailac, a director and playwright who had written a hit play, *La Famille Hernandez*, some 25 years ago. When



Mme. Bailac came to Compiegne in 1975 to take over the centre for cultural action, she offered Miss Singer the job of running programmes in music and astronomy.

At first, Miss Singer decided to sing to the children about the cosmos But it was too much for such a young audience : her class laughed when she tried. So she evolved her present show which she has presented to some 300 classes

Fourteen Towns Participate

In 1978, she also put on an Astronomy Festival involving 787 children in fourteen towns. Adults participated as well. On a Saturday night, she would set up a telescope in the little square outside the cultural centre and offer a look at the rings of Saturn to one and all During the festival, students, with the help of appropriate costumes, showed the nine planets with their moons and the sun. The winning class acted out the birth of the sun and the solar system, miming the play of gravitational forces. The festival, whose honorary president was Dr. Jastrow, may be a prelude to a rural astronomy centre that Miss Singer hopes to set up outside Compiegne.

Although there are no examinations in astronomy, the cultural action centre ran a contest in connection with the festival and the three winners were invited to visit the observatory of Haute Provence in southern France Questions tested not only their knowledge but their fantasy In some cases, they were asked to list the number of satellites of each planet or to explain why there are seasons. In others, they could let themselves go on such theme as "Imagine a conversation between two atoms" or "What would you say if you had to send a message into space defining the earth in a few lines ?"

Their answers, in many instances, supported Miss Singer's conviction that the universe is poetry :

> "*Two atoms met. They came from different families.*
> "*The hydrogen atom asked: 'Do you want to play with me ?'*
> "*No, you're too weak '*
> "'*Why?*'
> "*Because you've only got one electron.'*
> "*Same as you.*"
> "*No, I've got two.'*
> "*The hydrogen atom said to himself. 'I'm going to change into helium right away even if I must kill my friend the star.'*
> "*He told the helium atom:*
> " '*I' am a helium atom, I want to play with you*",
> "*All right*".

"*So the true helium atom and the false helium atom became the best friends in the universe*". □

Stop Rowing in Front of the Children

TEACHERS like parents, should not row in fornt of the children. Nor should they have too many disagreements in the privacy of the staff-room if they want strong discipline in their schools, reports Richard Garner in *The Times Educational Supplement* (15 8.80).

A united approach on discipline is as essential between teachers as it is between mothers and fathers, according to Mr. Don Venveil, assistant education officer (school support services) with the ILEA.

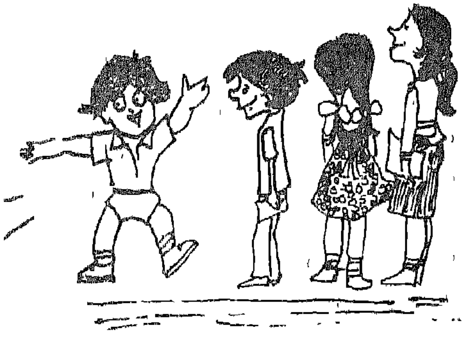
Mr. Venveil, writing on juvenile delinquency and staff-room politics in the latest issue of the Assistant Master and Mistresses Association journal *Report*, says: "Unruly behaviour by children is not helped by mutual recriminations amongst the staff.

"Where these matters or matters concerning curriculum cause the sharp dissension that political issues can cause, then the aggravation within them must be tempered for the sake of the influence of the school upon its pupils.

"Similarly politics should take a back seat, not the one near the fire. The regular picture of teachers marching under banners is a disturbing one in itself, even if one discounts the amount of activity that is diverted by such interests away from the enormously taxing duty of enabling children to learn".

In another article in the same magazine, Mr Max Morris, former president of the National Union of Teachers, argues that the country has been "brainwashed" into accepting a permanently lower level of educational provision without understanding its implications.

Mr. Morris said that even in the "good old days" there were few local education authorities considered "good" in their book provision



Disturbed Children Need Discipline

FIRM and consistent discipline combined with a warm, caring atmosphere are the keynotes of good special education for disturbed children, a report published by the Schools Council and reported by Diana Geddes in *The Times,* London, states.

It discusses the results of a three-year research project into good practice in such "education, funded by a £ 60,000 grant from the council and carried out by Dr Mary Wilson and Mrs. Mary Evans, both former inspectors of special education with the Inner London Education Authority.

The findings suggest that over the past 20 years attitudes towards the treatment of disturbed children have changed. It was once strongly believed that such children needed freedom from most rules and restraints, the report says.

Disturbed children were thought to have been pushed too hard and to need to express repressed anger by being aggressive and destructive in an untrammelled way.

There were doubtless some children of whom that was true, but present opinion seemed to be that for most of them firm, consistent discipline was beneficial, the report says Children whose internal lives were chaotic were found to benefit from calm, orderly and predictable living.

The authors are careful to point out, however, that discipline did not mean repressive regime with emphasis on severe punishment. Corporal punishment was used in only two of the 114 special schools for disturbed children included in the survey.

Rewards such as points, sweets, extra pocket money and other special treats were used to encourage good behaviour more than punishments were used to deter bad behaviour. Individual counselling was frequent

It is estimated that one in 10 children at school could be classified as "disturbed". However, only about one in 1,100 are in special schools and a further two in 1,000 may be in special units or classes for disturbed children.

A Promise for 1990

In India as in most parts of the third world, water is literally a matter of life and death. Water supply to most villages and cities is inadequate Even the water that is available is often contaminated and a source of disease to the people. In India alone, there are over 69,600 villages which are problem villages, and another two lakh villages where the water supply is adequate but open to the risk of pollution.

Since the problem is worldwide, a UN conference in 1976 stated a goal of 'Clean water for all by 1990'. A UN water conference in 1977 designated 1981-1990 to be an International Water Supply and Sanitation Decade. During this decade all the countries of the world will try to achieve a target of clean and safe drinking water for all their people, establish more relevant health services; place more emphasis on preventive health measures such as sanitation, try to bring about all-round social and economic development for the estimated 1230 million people without adequate water supply, and 1350 million people without proper sanitation.

In India at present the budgeted provision for water supply and sanitation both in the central and state sectors is barely two per cent of the overall plan outlays. It is estimated that Rs. 7,000 crores is required to bring safe drinking water to all villages in the next ten years. This is an immense sum if we take into account that only Rs 650 crores was spent on this between 1951-79

India hopes to achieve the following targets in the water decade

- Adequate and safe water for all her villages
- Complete sewerage and sanitation facilities for all her class one cities and 50 per cent for class two cities
- Sanitary toilets for at least 25 per cent of her rural areas. □

A Small Voice, Unicef

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"We have neglected and shown disrespect to our mother tongue. I am sure we will have to pay heavily for this act of sin."

Mahatma Gandhi